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ORIGINAL COMMUNICATIONS.

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SYMPOSIUM: THE DEAF AND HARD OF HEARING.

Direction of Section on Otology, New York Academy of Medicine, March 4, 1920.

THE DEAF CHILD.

DR. MAX A. GOLDSTEIN, St. Louis, Mo.

It is a real privilege to participate in this discussion and program as arranged by the Section on Otology of the New York Academy of Medicine for the benefit of the hard of hearing and to assist the propaganda of the Hard of Hearing League, not only in your city, but throughout the land. It is a worthy institution and worthy of every effort made in its behalf. I see this is a mixed audience of laymen and medical men. Unfortunately, the members of the general medical profession know little or nothing as yet about the important problems of the deaf and their most effective disposition. The question of the deaf, the disposition of the deaf adult, the proper education of the deaf child, are all as much a part of the responsibilities which should be assumed by the medical profession as are their professional and civic responsibilities toward the normal adult and the normal child.

I hope I may not abuse your hospitality as your guest if my remarks assume a somewhat critical character. It is unusual to find medical men interested in an altruism of so high a degree as the problems of the deaf, under consideration tonight. You may interest an organization of doctors in a new operation, you may stir up any medical fraternity by promulgating a new pathology or developing a new cure for disease, but it is a very difficult thing to interest even your own professional colleagues in otology and laryngol-

ogy in the problems of the deaf. I know, because I have tried it for nearly a quarter of a century. I am happy to say that at last the few of us who have been endeavoring to enlist the interest of the profession in the problems of the deaf, are beginning to see a rift in the clouds. I think that our labors are soon to be rewarded, for when the strength of the medical profession, its influences and its splendid capacities for communal uplift are brought to bear on the education of the deaf, both the adult and the child, a new evolutionary spirit will saturate the land.

In browsing around the City of New York the other day I acquired a little book through the courtesy of Mr. George D. Smith, the well-known bookseller, the Mr. Quarritch of America. It is entitled "Philocophus, or, the Deaf and Dumb Man's Friend; Exhibiting the Varieties of the Subtle Art Which May Enable One with an Observant Eye to Hear What Any Man Speaks by the Moving of the Lips; Upon the Same Ground with the Example of An Historic Exemplification, Apparently Proving That a Man Born Deaf and Dumb May Be Taught to Hear with His Eyes and Then Learn to Speak with His Tongue." Published in London at St. Paul's Church Yard, 1648. This is the first printed book on lip-reading, published in 1648—nearly three hundred years ago—and yet we are talking about this question as if it were an entirely new discovery that has come into the pedagogic and scientific world within the past few years.

About forty years ago Dr. Wilhelm Meyer, a general practitioner of Copenhagen, read a monograph in Glasgow before the Royal Medico-Chirurgical Society, a complete classic and exposition of his discovery of adenoid vegetations and his recommendations and methods for surgical disposition. He was hissed out of the assembly room and more than two years lapsed before the idea that he had set forth concerning the existence of adenoid vegetations took root in the minds of the medical fraternity; it was ten years after that presentation before the operation for the removal of adenoids was regularly performed in this country.

It is very apparent, therefore, that there are cycles of time in which questions that are new and unusual require time and opportunity for digestion before they can be put to definite and practical application. Here is another instance of medical lethargy to illustrate this point: last year I was invited to discuss before the Jackson County Medical Society of Missouri in Kansas City the problems of the deaf child. At my suggestion the teachers of the Oral Day School for the Deaf in Kansas City brought the children to

this meeting and gave a very creditable demonstration of their practical pedagogy. I think this was the first time that most of the ear specialists in Kansas City had ever heard any deaf child, trained in his home town, speak. I asked the direct question whether any of them had ever visited the school; they confessed they had not. I called attention to their responsibilities in the development of the deaf child and many spontaneously promised to interest themselves in their school. Six months later I met the head teacher of that school and asked if she had had any visits from the otologists. None had appeared.

The deaf child has a peculiar otological, psychological and pedagogical entity. Until he is taught speech and lip-reading, which is the progressive way to teach a deaf child today, it is a rather difficult thing to reach his brain. The deaf child's brain is in a state of excommunication from the world around him until the avenue of communication has been definitely established. Neurologists have even gone so far as to diagnose these children as cretins or morons. Several years ago two of St. Louis' most prominent pediatricians visited a class of deaf children with me and especially singled out one little boy, who, in their opinion, was a moron of whom they made the following prognosis: "In this boy you have a possibility of six months of education and this is your limitation; he will progress no further." At that time this boy had not yet been reached by methods of speech or lip-reading and no avenue of communication had as yet been established between the teacher and the pupil. Today he is one of the brightest children in the school and his capacity for education is unlimited. The question is one, not of mental incapacity, but rather of mental and pedagogic unpreparedness. Another point of much interest and one that will stand considerable revision in the old classification is the prescribed age limit at which the education of the deaf child should begin. We begin the training of our normal children at six years of age; this is a distinct empiricism. There is no logical reason for fixing the school age at six or seven years. The child's brain is receptive at three. We have deaf children in the Oral School in St. Louis of three and one-half and four years of age who are progressing just as rapidly as the children who began at six or seven, and they have the additional advantage of two or three years' of definite training before they have reached their sixth or seventh year.

Those who have had ample opportunity to compare pedagogical methods are confident that there is but one form of training for the congenitally deaf child and that is the purely oral method.

With all due respect to the sign method and the manual alphabet and their contributions to the history of education, we earnestly feel that they should be relegated to antiquated educational systems. We have proved beyond the most exacting criticism, that the congenitally deaf child may be trained by purely oral methods of speech and lip-reading just as readily as by signs and manual, and he has the additional advantage of not being ostracized from the social circle of his associates. The deaf child, trained by signs and manual methods, can communicate only with those familiar with his own system. The orally trained child is taught speech—by no means an easy pedagogic accomplishment—and he is taught lip-reading. We have congenitally deaf children who at ten or twelve years of age are brilliant, fluent-lip-readers. In nearly all the metropolitan cities of America purely oral day schools for the deaf are being established. This is an acknowledgment of modern educational accomplishments. In New York City you have two excellent oral schools for the education of deaf children. The Lexington Avenue School is a well-established institution where good, earnest work is done and satisfactory results obtained. The Oral Day School for the Deaf in New York City on East Twenty-third Street stands second to none in its class. Their speech work is good, their teachers well qualified and the morale and spirit of the school conducive to splendid possibilities.

I find that most deaf children who are taught by oral methods become good lip-readers. It is easier to teach fluent lip-reading than to train a child in intelligible, normal speech. Children who have acquired speech, even at an early age, before they become deaf have indeed a great asset, and every effort should be made to conserve every vestige of speech.

The child who has never heard the sound of the human voice is a difficult pedagogical problem. This problem is immense in its scope, but much has already been developed toward its solution.

This morning it was my privilege to attend a national committee meeting appointed at the last annual meeting of the American Medical Association and known as the Committee of the Deaf Child. It is the purpose of this committee to receive the recognition and endorsement of the American medical profession in the interests of all problems that concern the welfare and the future of the deaf child. This permanent committee consists of Dr. Charles W. Richardson of Washington, Dr. Elmer L. Kenyon of Chicago, and myself. There has already been added to this committee a similar representation from the American Otological Society, including Dr.

Thomas J. Harris of New York. The American Laryngological, Rhinological and Otological Society and the American Academy of Ophthalmology and Oto-laryngology will also be asked for representatives on this committee.

This committee has drafted a working plan to be submitted to the American Medical Association for its endorsement at the next annual convention. This plan includes many features in the development of the problems of the deaf child. It is the purpose of this committee to stimulate the interest of the entire medical profession in the education and care of the deaf, and we hope even to widen the scope of this committee to include the problems of defective speech and its correction.

While in New York I have had several conferences at the Carnegie Institution and the Rockefeller Foundation and officers of these two splendid institutions assure me that the matter of a careful survey and standardization of all schools for the deaf throughout the land will receive their very careful consideration. Some years ago Dr. Flexner of the Rockefeller Foundation and Dr. Pritchett of the Carnegie Institution developed a splendid survey which ultimately led to the standardization of the medical schools of the United States, and this has been one of the greatest evolutionary periods in the history of medical education in this country. In seven or eight years the influence of this work has developed the character and standard of our medical schools throughout the land.

Two years ago I submitted to the Society of Progressive Oral Advocates at St. Louis the problem of the possibilities of a survey for the standardization of all schools for the deaf throughout the land. This includes the State School, the Day School, the Private School, the Public School—every school teaching the deaf child. The three national associations of teachers, superintendents, educators and friends of the deaf meet in a joint centennial celebration at Mount Airy, the State School for the Deaf of Pennsylvania, and the fiftieth anniversary of the superintendent of that school, Dr. A. L. E. Crouter. Each of these national organizations has appointed a committee on survey and standardization. These committees will be called together and will digest the question of developing such a survey in detail, and the report of the deliberations of this joint committee will be submitted to the Rockefeller and Carnegie Foundations.

I have obtained the unqualified and unanimous endorsement of the members of our national medical committee on the deaf child and this committee representing the American Medical Association

will also be represented at the joint committee meeting at Mount Airy. This endorsement of the American medical profession of a plan for survey and standardization of schools for the deaf will mean a splendid backing for the national associations of superintendents, principals and teachers of the deaf in their efforts to elevate the standard of this special education. It is a vital necessity. If there is an unpreparedness in any special educational field in this country it is truly in the matter of the deaf child.

There are too many poorly qualified teachers; too many pupils assigned to the individual teacher; too many superintendents who hold their positions by political preferment rather than by their real and scientific fitness for such office; too many schools with insufficient equipment and unsatisfactory accommodations—these are all important questions which a survey and subsequent standardization may soon ferret out. We look forward to such an equitable and careful survey to bring about the necessary reforms in the disposition of all problems of the deaf.

In problems of the deaf must be included a careful consideration of the hard of hearing adults. The organization of leagues for the hard of hearing, of which the City of New York has made such an auspicious beginning, is a significant and important act. Leagues for the hard of hearing must, by their very nature, provide for the welfare of the adult deaf. They are constructive, educational, communal and national in their far-reaching scope and influence. The larger community should be induced to co-operate in the organization and maintenance of such leagues for the hard of hearing. Not only should the membership of such leagues include the adult deaf, but all who have been fortunately spared this visitation of deafness should contribute their share to the maintenance of such leagues as readily as they contribute to all other institutions intended for the uplift and care of any misfortune that befalls the human family.

It is with some embarrassment that I present for your consideration my personal criticism of one phase of the question of the hard of hearing which has already shown its significant influence. I refer to the preparation and employment of teachers of lip-reading for the adult deaf who are themselves so defective in hearing that they can no longer hear the voice of a pupil in ordinary conversational tone. When a lip-reading teacher becomes so deaf that he can not longer hear conversational voice he is reduced in efficiency as a teacher to a considerable degree, for he is unable to correct pitch, inflection, accent, pronunciation and intensity in voice. He is therefore not qualified to do full justice in his capacity as a

teacher of lip-reading to the adult deaf. My criticism is perhaps unfortunate in that many hard of hearing adults have sought this outlet as teachers of the adult deaf as a means of livelihood, and I deplore the necessity for the criticism, but feel, in all fairness to the large number of adult deaf who seek lip-reading instruction, that attention should be called to this phase of inefficiency.

I prefer the term "speech-reading" or "expression reading" to the more popular term "lip-reading," for we are not reading the lips alone, but include in this form of communication the shrug of the shoulder, the corrugation of the brow, the droop of the lid, the pecularities and changes in the expression of the head—all of these are factors of as much importance in interpreting expressed language as are the movements of the lips alone.

I regard it as a special privilege to be here this evening. I plead for the cause of the deaf child and the deaf adult. The League for the Hard of Hearing in New York has been established with much earnestness and care and it deserves liberal and hearty co-operation. Its ramifications and influence should rapidly spread throughout the land and kindred leagues should be established in every large communal center where the appeal to the community of the afflicted deaf can reach the hearts of men. You cannot secure too many adherents and supporters. I appeal to the medical profession to support this splendid cause. Every otologist is now placed in the position scientifically to determine with fair accuracy by functional tests of hearing whether deafness is of the progressive, oto-sclerotic and non-curable type on the one hand, or, on the other hand, whether there is still some mechanical obstruction, constitutional aid, or surgical intervention that might be of benefit to the patient. Members of the medical profession and especially oto-laryngologists should participate not only by their moral support and subscription to such leagues for the hard of hearing and to all movements concerned in the uplift of the deaf, but they should give their actual services and of their scientific experience and ability whenever called upon. Every doctor in the community should feel a responsibility to the deaf child and to the deaf adult and to the upbuilding of every influence and every institution that is created for the development of all problems of the deaf.

Dr. Goldstein, in closing, said: In the education of the deaf child we have suffered for many years by the unfortunate rivalry and strained relations existing between two classes of educators—one, the signers and manualists, the other, the advocates of pure oral

instruction. These two important forces, instead of working conjointly in the interests and advancement of the education of the deaf child, have pulled to cross purposes in their petty pedagogic and political rivalries. Much valuable time would have been saved, much splendid energy conserved, advancement in the education of the deaf child would have been much more rapidly effected if these opposing forces could have been induced to consolidate their energies without the world of friction that has existed for so many years.

I appeal to you to prevent a similar catastrophe in the cause of the hard of hearing adult and his future uplift. I appeal to you for the possible consummation and adjustment of an equitable system of instruction in lip-reading for the adult deaf by which the Mueller-Walle method, the Nitchie system, the Kinzie modification and all other methods of instruction in lip-reading may be thrown into one large melting pot; where the advantages in each of these admirable systems may be carefully culled and where one uniform system of teaching lip-reading to the deaf adult may be developed.

DEMONSTRATION OF RECONSTRUCTION SECTION OF DEFECTS OF HEARING AND SPEECH.

Dr. Charels W. Richardson, Washington, D. C.

The Section of Defects in Hearing and Speech in the Division of Reconstruction of the Surgeon General's Office was given a definite form on March 1, 1918. At the same time I was officially notified that I was to be designated as director of this section. Shortly thereafter I was relieved from my former duty and assigned to the Division of Reconstruction as director of the section.

Before entering upon my duties I had made a careful study of the problems connected with this activity and therefore was partially prepared for the organization of the section.

The Reconstruction Division at this time was just struggling to its feet after the numerous intense attacks made upon it for the purpose of abridging and curtailing its activities by individuals representing other agencies in inter-allied departments and independent groups of government forces. Although seeking to gain more power by the hedging in and curtailment of the duties of this division, two of these agencies already had more work set out for them than they could possibly accomplish even had their administrators and projectors possessed superhuman wisdom and administrative ability.

At this time we also had the inauguration of a new chief. After the usual "ups and downs," incident to establishing a new procedure had been gone through we found that on July 23, 1918, we were actually a working section with a full active unit, consisting of a superintendent, principal and teachers with seventeen patients for treatment. During our period of organization, that is, until we started the practical side of our work, we so perfected our plans that we found at the ending of the service December 15, 1919, it was totally unnecessary to alter them in any way whatsoever. In fact, theoretically, we made preparations for many contingencies that never arose. One of our greatest difficulties in preparation was the attempt to obtain statistics as to the probable number of patients requiring this form of treatment. The reluctance with which information of a reliable nature was furnished is in striking contrast with which that of an unreliable nature was thrust upon us. The

most reliable that we were able to obtain came from our distinguished colleague, Major Dundas Grant of London, who held a somewhat similar position in the British Army as we did to the American Army. The ratio that he furnished was the basis upon which we work, making certain deductions from the physical character of our forces and the type of warfare that ensued after the A. E. F. entered the campaign. Even our calculation of one-half of 1 per cent to the total wounded was even greater than the actual results. We had enrolled upon our list of instructors, in speech-reading, one hundred teachers who were anxious and willing to enter the service, as reconstruction aides under full army regulations. Our list of instructors in speech defects was not quite so large, but included some excellent teachers—the number was fifty-three. As we were only forced to call upon ten of these for speech-reading, and three for speech defects, you can readily see how well we were prepared for the emergency. It is due to the superintendent, principal and instructors to state that I never expect to find a better equipped, more intelligent, more enthusiastic and more devoted band of laborers in any field of human endeavor than in this body. They had one object in view, that is, the making of a perfect speech reader out of every patient that was presented, and they came very near to the full accomplishment of the task. Individual temperament and mental status of the patient was the only obstacle that prevented them from the full accomplishment of the complete result.

The methods which were employed in our work were those which are known as the Muller-Walle method, Miss Bruhn's textbook on the Muller-Walle method was selected as a basis for the work. We also made use of the Nitchie method. We were as catholic in our efforts as possible to obtain good results. We followed out the usual routine method in all cases, although there was a considerable amount of speech-reading taught "by doing it." We resorted to the use of mirrors, blackboard illustrations, demonstrations and the use of the Northampton charts. It had been our intention also to make use of moving picture demonstrations, but we found that such a course was practically unnecessary.

The method of teaching was an intensive one. The patients were taught by the individual method. Each patient was at first given one to two lessons a day, which were rapidly increased to two or three periods a day, according to his mental ability to absorb. Care was taken to see that no patient suffered mental fatigue from overwork. The time employed at each period was forty-five minutes.

Most patients requested more work than we were able to give them or more time than we thought wise for them to receive.

In the section of defects in hearing we treated 112 patients. In the section of defects of speech we treated fifty-four patients.

Results. The reports of the Home Service Section, A. R. C., are very interesting and I will give you a few of them. These reports agree generally with the standard of the patient as when he was discharged although many show improvement:

Name	*Grade*	*Impression of Visitor*
L. H. A.	Excellent	No trouble for him to understand.
B.	"	Very proficient.
B.	"	Understands remarkably well.
B.	"	Understands well.
B.	"	Reads lips well.
B.	"	Understands well.
D.	Good	Much impressed with lip-reading.
C.	Fair	Apparently needs no help.
H.	Excellent	No trouble in understanding.
H.	Good	Reads lips well.
H.	Excellent	Has very little trouble in understanding all that is said even in crowd.
J.	Good	Answers freely, adept lip reader.
M.	Excellent	Most favorable; can hardly believe him deaf.
R.	Excellent	Answers very readily; can always understand.
S.	Excellent	Visitor saw patient several times and talked with him; did not know he was deaf until told.
W.	Excellent	Lip-reading helps; people do not know of deafness.
W.	Good	If you speak slowly is able to read lips well.
W.	Fair	Lip-reading difficult.
D.	Average	Has difficulty.

These few reports will indicate that we not only gained results, but that the good results were maintained by the men many months after they were discharged from the service. You will pardon me, I hope, for stating that our results have been unexpectedly great. The success in our speech-hearing sections can be measured by the following figures: Excellent, 53 per cent; good, 21 per cent; average, 14 per cent; fair, 6 per cent; poor, 6 per cent.

During the course of the sectional work, both at G. H. No. 11 and at G. H. No. 41, numerous persons interested in the teaching of the deaf visited our sections and were most complimentary as to the character of the work, the methods employed, the staff of instructors and the results attained.

During the meeting of the American Medical Association and the Congress of Physicians and Surgeons, numerous members of these

bodies visited G. H. No. 11, and from whatever viewpoint they sought medical information, during their visits at Cape May, they lingered longer and studied more intently the work that was being carried on in the Section of Defects of Hearing and Speech. I do not know whether this was due to something new to them being accomplished with apparent success, or whether the results attained through the scientific methods employed appealed to them.

We believe the work accomplished by this section marks an advance in the teaching of speech-reading to the deaf.

It also demonstrated that a high-grade of intelligence is not necessary to acquire facility in speech-reading.

We had all types of minds, all grades of education, and all forms of temperament, but not one required, nor was it necessary to give to anyone the manual method of training.

These efforts have brought more forcibly to the American medical mind the fact that the deaf can be placed upon a purely independent plane through speech-reading, than through any other method of which I am aware.

In closing, I might suggest that there is a possibility that the method of intensive training instituted in our work might be of some service in the instruction of the lay deaf.

HOW THE DEAFENED REBUILD THEIR LIVES.

ANNETTA W. PECK, *Executive Secretary, the New York League for the Hard of Hearing.*

Do the deafened actually rebuild their lives? The otologist, speaking from his enormous experience, declares, "They don't!" The social worker says, "Come with me and I will show you that they do!" Yet both doctor and social worker are right. The former knows, as no other can, the determination of the deafened man to be wretched, his insistence upon being left alone in a misery which he considers hopeless, his deep hostility towards any efforts to help him. The social worker, on the contrary, is in contact with deafened persons whose rebuilding is a patent fact. She sees before her the daily wonder of additions to this brave company of people who are

conquering the imposed limitations of a handicap whose cruelty is refined to a high degree.

The victims of acquired deafness constitute a very considerable number of each community, and of these the ones who have surrendered body and soul to the enemy are in an overwhelming majority. Yet practically every one of them may be reached and inspired to turn on that enemy and conquer gloriously. The impulse to rise and win, it must be admitted, almost invariably is applied from without, and it is in the administration of this external force that the deafened find their own greatest spiritual opportunity. Proceeding upon the general principle that no one can understand a condition like him who lives under it, the deafened social worker seeks to attract the despondent and all but demoralized vicitim of adventitious deafness by appealing to certain universal needs—the need of economic independence, the need of easier communication, the need of wholesome play, the need to be of service.

An endless army of the partially deafened passes through the ear clinics; yet in this comparatively enlightened day an enormous number never receive the doctor's ministrations and neglect their ear diseases until they become incurable. In practically every one of these instances, as well as in the cases of well-to-do private patients, deafness blights the life. The effect, whether economic or spiritual, or both, varies according to the individual and often assumes the proportions of tragedy. The down-and-outs may be from Norfolk Street or from Park Avenue, but in wretchedness they are one. In this blighted state the deafened person out of a job reads an inconspicuous ad in the want column of his newspaper: "Jobs for the hard of hearing. Apply at the free employment bureau of the N. Y. League for the Hard of Hearing." Another may read that the city is conducting a free class in lip-reading at the League's rooms still another chances upon a letter to the editor telling about one of the League's recreation clubs and the good times enjoyed in it. At all events, hope is born—a tiny hope that pierces hopelessness; and that hope will draw until some time, it may not be for months, courage is plucked up to call at the League's office. Sometimes it takes more than one attempt to get as far as the elevator and through the doorway. In every instance, except those few who expect deafness to be miraculously healed or exorcised, the man or woman gets what he or she came for, and gets it abundantly. It is not too much to say that he gets much more; for in that moment when he opens his heart and his life to receive what he sorely needs, his reconstruction begins.

He is in contact with the external force, and under its pressure he turns at once to the rebuilding of his life. He becomes a self-supporting, contented, hopeful, happy man; unconsciously he then proceeds to build another story on his tower—the pinnacle of service.

As the greatest regeneration of all visits him who gives his heart to God and his life to humanity, so when the impulse to serve takes possession of the deafened man he is in a degree reborn. In helping others to rebuild their lives, he is completing the rebuilding of his own. Let a young fellow who is a leading worker in one of our recreational clubs speak to you himself. Three years ago, at the age of twenty-one, he wrote to us, being then downhearted and out of a job. He closed his letter in this way: "Praying that what you have to offer me in the way of help and advice will make life more endurable, I am, hopefully yours ————." Contrast this with a letter recently received: "In the metamorphosis from morbidity, moroseness and shrinking self-pity to happiness and usefulness the major credit, in my case, goes to the Thursday night club. In service I found happiness. I was as a blind man groping in a darkened world. The word *service* has a vast significance to me, and it is because the Thursday night club is my opportunity that the club means much to me. The power I found I had to make others happy, I have learned to use with all my might. We are getting the greatest amount of lasting good from the club."

Different, yet with the same general idea of finding one's outlet through service, is the life of a lady whose serious deafness antedates the organized work which has done so much for our young man. Hers is the ripened mind and heart of the deeply spiritual type which has had all the world's cultural riches at its command. The handicap can hardly exist for such a woman; yet one thing was needed, the opportunity for self-expression afforded her by the leadership of our Friday Study Club. To pass on the fruits of her rich experience, to draw within the circle of her graciousness a hundred other women, to radiate the light of her serene spirit—these were her gifts, and in blessing others with them she crowned her own life. She now lives in another city, and is helping a younger organization which has not yet discovered the jewel in its hand; but the jewel's brilliance will never remain hidden.

With the majority of our friends the work of reconstruction has included more or less of character building. In other words, they should have made contact with the external force sooner, for in this way a gentle readjustment can take place in which the individual is spared the despondency and the self-distrust that paralyze

the spirits of the deafened. In a word, their deafness is no economic handicap whatever. Let us compare the experiences of four types, each of whom became partially deafened in youth and each of whom has arrived at a rebuilt life by a different way. Two were reached early, but two endured many things before they found their full expression and their true place in life. The oldest of these had been for several years in th clutches of an incurable ear disease before that disease was even described; she suffered every form of deprivation and indignity known to the deafened, including the miseries resulting from stupid vocational direction. Years passed, and, already partially reconstructed, she came into touch with lip-reading; her instructor pushed forward that development. Through him she finally reached economic independence and spiritual satisfaction. The second example was much younger when she met with lip-reading, although she, too, has a history of miseries indignantly endured. Trained for professional work which a deafened person could not pursue, she became a teacher of lip-reading, and through this readjustment a reconstructed woman. Yet with all the possibilities of this work her unusual ability demanded a wider field, which she has found in an opportunity to utilize the portion of her former training whose exercise she craved.

The two others of this group stepped across the line of reconstruction almost unconsciously, and they will never bear the scars of the world's ignorance and vulgarity. One came into her work during her senior year in college, through the vocational direction of the League. She went out into the hearing world to fill with success a responsible position. Later the attraction of organization work proved so strong that she left her commercial position for one which gives full scope to her humanitarian interests. The fourth and youngest, a young woman of promise, is able to make her choice of occupations, in any one of which she will be not only happy and useful but which also will offer her chances for a career of progress. These young people have never experienced the unhappiness undergone by the two cases first cited, and their good fortune should not be the exception, but the rule. Indeed, it should be the duty of the teacher and the otologist to see that boys and girls whose hearing is even slightly affected should be instructed in lip-reading while their minds are plastic and then trained for occupations in which a possible increase of deafness will present no barrier to success.

Difficult, indeed, are the cases whose handicap is not deafness, but low morale. The individual is shiftless, lazy, a dependent on the organized charities with all his house; or perhaps he is out

and out crooked. These people will wail loudly and long about the miseries of deafness and the world's hardness towards the deafened man. Again, there are the pitiful aged, who will not recognize that the handicap is their years, not their lack of hearing, and who refuse all efforts to place them in comfortable institutional homes. We have also an occasional backslider, who, having received all, deliberately settles down to self-satisfied deterioration. Lastly, we have the rare cases of persons dtermined to have their hearing back —the irreconcilables. Here is one which concentrates all the elements of rebellion and its dangerous tendencies in one woman, young, not unattractive, and with as fair a chance for happiness as any human being. She was sent to us by one of our Consulting Board of Otologists, who asked us to to help her to accept the fact of her deafness. She was in an indescribable condition of tears and fury and the entire staff of workers hoped, at the close of the first afternoon, that a start towards a better viewpoint had been made. She attended one session of a lip-reading class, where she created a disturbance by shouting out her horror of deafened people. A month after her first visit she returned in a worse mental state than ever. She had not returned to the doctor who told her the truth, but had sought out another of equal truthfulness, who added that it was just possible that the extraction of her teeth might help. She accordingly had half of her upper teeth extracted, receiving also from the dentist inoculations in one arm, and from a practitioner of another species a series of inoculations in the other arm, besides undergoing violet ray treatment. She has left a good industrial job at $30 a week and is spending her entire time and her savings in the hopeless quest of regaining hearing. Our workers feel that they can gain control of the case only through co-operation with her family and so far their efforts in this line have not met with success.

It may be asked whether there are any deafened people who cannot be brought into contact with these beneficent impulses towards rehabilitation. It can be answered positively, not among working people or fairly educated people. They respond in an open-hearted, sensible, normal way to every kindly effort, realizing the existence of fraternal spirit among the deafened. The highly educated and cultivated for the most part share this spirit of brotherhood, but it is amongst them only that there exist a few individuals, who, knowing fully what riches are within their grasp, refuse them. These will not study lip-reading, even though they see its marvels before their eyes; they will not make life easier for their

friends by using a hearing device; and almost universally, they will support every philanthropic project under the sun, but will ignore or refuse what is their first duty—to finance reclamation work among those laboring under the same handicap as themselves. The reason doubtless lies deeply hidden in the uninvestigated psychology of acquired deafness. However, the social worker has merely to look about the world and note its recent sociological progress to be assured that the solution of this problem is the simple matter of finding a way. Perhaps the way lies in the direction of prevention of work leading to the elimination of deafness.

In fighting for the realization of this great hope the deafened man of riches may well join his weapons to those of the social worker. These two must be the faithful and tireless coadjutors of the doctor's experience, while the doctor should join heartily with them in the active co-operation which alone can make the dream come true. By means of aural examination of school children, of school clinics for prompt treatment of conditions which arise most often during the school years; by teaching hard of hearing children the art of lip-reading and giving them small recitation groups in the regular subjects without segregating them from hearing children; by elimination of hereditary disease and infectious diseases; by making the researches which these activities demand—by all these means the end may be attained. Surely there can be no finer object to strive for than the liberation of the race from such a handicap, but it is an object which calls for organized effort. Such effort should spread the work now done locally by the New York League for the Hard of Hearing. The machinery is already organized, incorporated and ready to function, in the form of the American Association for the Hard of Hearing. We call upon all who are here tonight to enter freely and spontaneously into this national movement; to give to it their moral support and their financial support; to procure this support from others, especially from that numerous company of the deafened people who do not as yet realize their obligation to their fellow-handicapped. Membership in this national association will consolidate for victory these three strong factors—the social worker, the physician and the man of wealth.

PSYCHOLOGY OF DEAFENED PEOPLE FROM A LAYMAN'S POINT OF VIEW.

DR. JOHN DE RAISMES STOREY.

I have a quarrel with my subject. Not that "The Psychology of Deafened People" isn't a perfectly good subject; but for many years I have been striving to make myself believe that the psychology of deafened people is like that of other people.

Ideally it would be true that the deafened have mental processes and traits similar to those of any haphazardly selected large group. Practically, however, the limitations of the deafened and the overemphasis in their lives of certain problems tend to develop certain qualities and certain faults, and there is such a thing as a typical deaf man.

To my mind the besetting sin of my afflicted brethren is fear and its various derivatives, timidity, self-consciousness, sensitiveness, etc. We are afraid of being conspicuous, of being laughed at, and the covert smile we detect on the faces of many presumably decent folk when we have to be shouted at cuts like a lash. We Americans do not, as a rule, covet being different from our neighbors in superficial things. We like to do the things others are doing but to do them better and to be like others but superior.

It is just here that the deaf person is at a disadvantage. He may be a man of natural parts and cultivated attainments, but in social intercourse he feels his inferiority to the most callow youth.

The secret, I suppose, of pleasant and fruitful social companionship involves those concerned being placed at ease and on an equal footing. The deafened man knows that the account opens with a debit against him as the other man must shout perhaps or put himself out in some other way; and it is then hard to be self-forgetful. When a cold perspiration is trickling down one's back and when one is straining to follow a train of thought, it is small wonder that one lacks responsiveness or that one's conversation is not characterized by snap and point.

Unless the deafened is a person of unusual social gifts and aptitudes he is prone to avoid as much as possible, general companionship with others and to gradually withdraw within himself, not because of any genuine disposition to live alone, but because it is the line of least resistance. In this social isolation are developed prac-

tically all the mental and moral consequences which make the typical deafened man or woman—shyness, self-consciousness, self-centeredness, sensitiveness, queerness, discouragement, depression, timidity, the sense of shame at being hard of hearing, and all the other faults which human beings develop when they are much more by themselves than they were intended to be. For comparatively few of us are natural hermits, thriving on loneliness.

Obviously, this mental make-up, when added to the physical handicap of deafness, also seriously impairs one's chances in the business world. Some fields of undertaking are necessarily closed. In others it is hard for the deafened to get an opportunity, and he may be obliged to take some uncongenial inferior task because employers or clients are too indifferent, timid or uninspired to offer him a chance. Thus there is a great danger of the deafened falling in the economic field into the hands of the selfish exploiter of labor. If he does so, then his standard of living will be lowered, his chance of social intercourse minimized and all his faults developed by his deafness will increase. The life he leads may become constantly narrower and more self-centered. He may in a sense be driven to nurse his affliction until that is the most apparent and important thing about him and his failure in dealing with his difficulty is made self-evident by his acquaintances thinking of him only as "that deaf man."

The great task of the deafened, therefore, is to overcome his fears, to take a definite place in the social world and especially to strive for recognition in the economic world. Nothing has a more wholesome leavening effect on human character than working perseveringly at a congenial task. There are many tasks in this complicated modern world. It should not be too difficult to find an agreeable one among those that are possible. Moreover, it is surprising in how many occupations a deafened man can be useful in this age of specialization. To gain such an opportunity a deafened man must overcome the obstacles within him and those which are objective.

In the first place he must refuse to be a typically deafened man and endeavor to be successfully deaf. By that I mean he must strive to live a normal, wholesome life, with an occupation suited to his capacity, with friends, hobbies, wide interests, etc., and not to let his affliction affect his character except beneficially. To a large extent the physical aspects of his problem can be overcome; and in ways that go far to remove the psychological difficulties, which I believe are the greatest.

Lip-reading and the electrical devices invented of recent years are by no means perfect substitutes for hearing, but in many cases they offer a real opportunity to live, not perhaps exactly as one would like (and who does) but to live the normal, wholesome life I have referred to.

I have always felt that to be really successfully deaf one should be a skilled lip-reader. It is, perhaps, well that I should feel that way, as I am a very poor lip-reader, and it is unhealthy to attain one's ideal. The psychological effects of mastering lip-reading are well known. It gives the lip-reader confidence, and the other party is not called upon to share any awkward situation and perhaps is not even called upon to put himself out in any way.

The electrical devices, also, are found by many to be of great material assistance, and they, too, have their favorable psychological aspect encouraging to the deafened who is not too intimidated by false shame.

There is something funny to many minds about an ear trumpet. No matter what its shape may be an ear trumpet strikes one as being in the wrong place and as being queer. Moreover, few people are accustomed to speak into ear trumpets. These electrical devices on the other hand appear to mark one as being progressive and possessing all the modern conveniences. No caricaturist has been ingenious enough to make them seem funny. It seems to give one a standing as a patron of the applied sciences. Practically everybody in this country is accustomed to use the telephone. Therefore, comparatively few find it uncomfortable to speak in the vicinity of such devices. I profoundly believe that many hard of hearing people have been helped to overcome their self-consciousness by the use of such appliances.

It was my great privilege to serve at Rome for eighteen months during the war as assistant counsel and later as counsel for the American Red Cross Commission to Italy. I had occasion to call on high Italian dignitaries in the uniform of an A. R. C. captain. After the usual three bows I would draw out of my pocket and adjust my electrical device, explaining that I was hard of hearing. It would usually lead to interested questions about the instrument on the part of the Italian and complimentary remarks with regard to American ingenuity. Then if in the course of our conference the instrument went wrong, as it usually did, for I could get no one to repair it in Italy, it gave me an opportunity to make some light remark, as we would now comment on the poor telephone service. Altogether the interview would go off very well.

With the Italian of the humbler class the instrument did not always work so well. I remember that one Italian soldier who came to see me about some difficulty, looked so worried when I drew out my instrument that I felt called upon to assure him it was a hearing device and not a hand grenade. Whereupon he laughed so heartily that we quickly discovered that the difficulty he came about had vanished.

Thus in one way or another the physical aspects of deafness can, to a sufficient extent, be overcome by most of the deafened, in ways which clear the field to a certain degree of some of the psychological obstacles. If encouraged by these aids the deafened will only use his social opportunities, the benefits of social intercourse will not be denied him. Opportunities of serving others offer themselves to everyone, and by serving one makes friends. What if his friends are fewer than would probably be the case if he has normal hearing. They are usually an *elite*, whatever may be their station in life.

I have spoken as though the deafened man's point of view were the only one to be considered. Of course, he is the prime factor; but in the first place he cannot always help himself. He may not have had any advantages. He may feel that all the world agrees with him that he is useless. He must be helped to see his mistake and to make the most of his life. It is just here that the deafened can help each other by studying the broad aspects of their problem, for while the details vary the main proposition is the same in all cases, namely, to turn a discouraged deafened person into a useful and contented human factor. You doctors can help us, too, and be better doctors by doing so.

A great corporation lawyer once reproved me for not having followed up a client sufficiently in a certain complicated commercial matter. I replied that having prepared the papers and advised the client as to the law I thought I had done all that could be expected of me. The lawyer said: "No, you should have advised him as to every aspect of his difficulty and kept in touch with him in working it out. That is the only way to practice law, and in the long run it is what the clients expect." These views, I may add, have enabled that lawyer to earn a large fortune in his profession. Similarly we come to you doctors not merely with problems in otology but with closely related human difficulties. You have always given us the benefit of your scientific skill and learning in otology and surgery, we ask you on behalf of our afflicted brethren to study and assist in the solution of our entire problem.

I have dealt with the psychology of the deafened. His psychology is not, however, the only one to be considered. I must imitate the example of tradesmen in the case of the high cost of living, and blame the public for making our task more difficult. The public has, in fact, its typical psychological reaction to the deafened man. Pity, not unmingled with impatience, and then indifference is the lot of most deafened people. They are avoided. They are not given a fair opportunity to take their place in the social and economic world.

There are many exceptions in this attitude towards the deafened. These have not to be told that a deafened man can be companionable, useful, sympathetic, amusing, perhaps, etc., in short all that a friend should be to a limited number of friends. I say a limited number as social intercourse tires the deafened more rapidly than the normal of hearing.

In the business world there is much that a deafened man can do. He is apt to be grateful for the opportunity to work at a congenial task and therefore to be enthusiastic over it. He is not easily distracted, and is not under the same temptation to loiter in conversation as the normal of hearing. He can concentrate more readily. There are many tasks in every profession and occupation which do not require good hearing or much conversation with others.

Personally, I do not feel that the deafened man should accept a humble task if he is fitted by attainments for a better one, though there may seem to be difficulties in his way. To intrude my own personal experience I may say that I always wanted to be a lawyer in spite of the advice of many good people. At the law school I depended upon the notes of my neighbors as I could not follow the lectures. After some little difficulty I found a position which enabled me to gain a good general experience in the law. Since then I have continued in the legal profession, and while I have made no great stir I have always had congenial tasks. I could not, of course, be a general practitioner, but in conjunction with other lawyers I can fit in apparently satisfactorily. The only time I was near starvation was when I spent a year trying to practice law in a city in Arizona. Even then I was rescued by an ex-New York lawyer with more vision than the other local men and was soon happily occupied at my beloved profession.

I have found that it is the men of vision, the big men, that will give the deafened a chance to show their worth. The small man sees only the difficulties; the big man appraises the difficulties, but looks at the balance as well. Nearly all my professional opportuni-

ties have been given me by people of exceptional abilities, character, culture and heart. Thus it was a big man that afforded me the opportunity to go to Italy with the A. R. C. When there, it was an average man who tried to keep me at a small job. However, another big man soon found something more important for me to do and after that I was happily occupied in professional work for the rest of my stay in Italy with the A. R. C. It was the big men of the Commission who used me most. By that I do not mean only those occupying important positions, though as it happened that was mainly the case, but those who were above the average as men.

It is this fact in my experience which leads me to feel confident that the deafened, in co-operation with the enlightened among the public—led by you doctors—will be able to reclaim to useful, contented citizenship, many who would otherwise prove among the flotsam and jetsam of life. The task is a difficult one; but in a great many cases not as difficult as might be thought, and as a great teacher has said, it is the privilege of man to pluck out of misfortune and defeat not merely resignation, but positive good which, but for the very evil it transmuted would never have come to pass.

We trust that as members of the profession with which the deafened must come in immediate contact you will not only co-operate with the individuals confronted with these difficulties but also assist in every way, including financially, an organization such as the New York League for the Hard of Hearing, which is devoted to the interests of the deafened.

EARS AND THE JOB.

ESTELLE E. SAMUELSON, New York.

Time and again we have heard the proverb, "All work and no play makes Jack a dull boy." If that is true how much truer is this—No work and no play makes Jack a duller boy. Jack is the jobless deafened man. Sufficient dullness sharpened by deafness results in deadness. But we refuse to die! Yet death in soul and spirit would have been the fate of many of the deafened toilers of New York, if the New York League for the Hard of Hearing had not stepped forward and entered the employment field.

We set out to solicit the co-operation of business firms. It was not always a simple matter to obtain an audience but continued effort and persistence reaps its reward. These interviews frequently lay bare employers' ignorance of the hard of hearing, and how little thought they have given to the subject of deafness. The interview is something of this nature. "I am seeking employment for a young woman. She is an excellent typist and Spanish correspondent." "Oh, yes, send her along. We can always use a girl of that type." "Would the position you contemplate offering her necessitate answering a phone or interviewing many people? You see our applicant is hard of hearing." The reply then is, of course, "We could not use her. She would take up too much of our time—we could not be bothered with her kind." (He has admitted that he has an opening for one with her qualifications, but he considers her deafness unsurmountable.) This is the point at which his education must begin and so we continue, "Does it not occur to you that because of deafness this employe may be a greater asset in your organization than an employe with perfect hearing?" "How's that?" he says. By this time he is either angry clear through because you are wasting his time or he is amused. "Let me tell you what other employers report about their hard of hearing employes.

A hard of hearing person is an asset in a business office because he concentrates better than others.

A hard of hearing person is more efficient at general routine work because he is accustomed to monotony and isolation.

A hard of hearing person does more work in less time than a hearing person because he does not engage in the constant chatter going on about him.

A hard of hearing person is reliable and appreciative of his employer's effort to train him because he recognizes his limitations and does not seek constant change.

A hard of hearing person is a master of detail."

He then says, "Send her along."

By this time we have our promise that the deafened man would be given a trial. While we originally set out to find an opening for a particular individual we usually make another connection and a complete survey to ascertain the nerve strain and tension, amount of standing, dampness, varying temperature and amount of exposure if any. It is always our desire to place our applicants where the conditions in the work place are such as to conserve whatever hearing the applicant has. Thus we endeavor to place a clerical worker with nerve deafness in a place where there is no great

nerve strain and no necessity for constant communication with others. We have 379 active co-operating firms and are making new connections daily.

We as well as all placement workers among the handicapped recognize that while we must not be doctors we must have a general idea of the worker's physical condition and especially as it effects his particular handicaps so that we may study the types of work which are injurious and which are peculiarly suitable to a man with that handicap. This brings the doctor, in our case the otologist, for it is to him we must go for the diagnosis and prognosis. We are making it a point to try to obtain scientifically accurate reports as to the type and degree of deafness. Some applicants can refer us to their own otologists or clinic, while others are sent by us for examination. Knowing our aim the doctor who quite frequently knows the individual better than we or more intimately, offers a most valuable suggestion toward vocational selection. Our records show that only 75 per cent of the applicants registered in the past year had had aural examination or treatment. 39 per cent were slightly hard of hearing, 44 per cent hard of hearing, and 17 per cent totally deafened. The deafness of 44 per cent of our cases was caused by catarrhal trouble, 10 per cent by scarlet fever, 1 per cent by diphtheria, 5 per cent by syphilis, 4½ per cent by meningitis, 1½ per cent by measles, 5 per cent by other illness, 10 per cent nerve deafness, 10 per cent by accident and injury, and 10 per cent cause unknown to individual.

Considering the other side of the question we have the deafened job hunter. He is usually unadjusted and yet unwilling to be rehabilitated. He knows all the despair and discouragement of fruitless seeking. Sometimes he is successful in securing an audience with a prospective employer, more frequently he is not. Either he turns back because of fear that his deafness will be detected or that he may not answer the questions correctly and appear foolish. He doesn't get beyond the first person who is the office boy or timekeeper, and whom no one ever does understand. We deafened people say we didn't understand their command because of our deafness. Our friends declare no one ever hears their grunt or bark. On the other hand when an applicant goes to these same places armed with a League card of introduction or with our visitor he secures his interview and the position. In the year 1919-1920 we had 272 applicants and placed 207.

We have helped to increase the efficiency and economic value of a number of those who have come to us by urging upon them and proving to them the advantage of making their powers of

comprehension greater, so that association with them will be more agreeable and less trying to the people who employ them. We urge them to arm themselves with every available medium of communication, that is, a knowledge and mastery of lip-reading or a hearing device if possible. We direct them to our recreation clubs where they can play and have an opportunity for self-expression which helps them crawl out of their shells, give them greater courage and independence and a more positive attitude and regard for themselves, which, of course, reflects in their work.

May I cite a few cases meriting review. A young man aged twenty-one, totally deafened in an accident was previously engaged in an occupation which required constant telephoning. Both he and his mother realized that he would have to begin all over again and learn a trade. Lip-reading instruction was offered him also. The greatest care and effort was exercised in guiding him in the selection of a vocation but every time he was placed he gave up the position within two or three weeks. He was losing his grip on himself very rapidly but we would not relax our hold. Finally we made another attempt. We offered him an opening which permitted greater exercise of his constructive imagination and invention as well as manual skill. For the past fourteen weeks he has been happily at work. His actions indicate a desire for better things and renewed ambition.

Still another case is that of a young man aged twenty-five, whose deafness is attributed to shell explosion in the army. He was taught lip-reading at an army hospital. His occupations before entering service were chauffeur and telephone installer, neither of which he could pursue with deafness. He came to us through the Red Cross Home Service. We placed him at a better position than he had ever held. He writes, "I have had an increase in salary. Also am in charge of my department and the work is very interesting. I do not know how to thank you enough for your kindness in helping me in securing said position."

We are daily striving for greater co-operation. Our connections especially with the doctors interested in our work has proved how much good can result from it. Invaluable aid has come by their ever ready willingness to corroborate vocational advice we have given or by immediately sending their patients to us with their economic problems. We have often felt that where we could do our vocational counseling through the doctor we reached farther and left a greater impression on the individual. We will be doing still better work when we are working with everyone of you.

STUDIES BY THE BARANY ROTATION AND CALORIC TESTS OF TUMORS OF THE NERVUS ACUSTICUS.*

DR. HARRIS H. VAIL, Cincinnati, Ohio.

In this report I wish to record the findings in ten cases of verified tumor of the eighth nerve by the Barany rotation and caloric tests.* I desire to express my gratitude to Dr. Cushing for the opportunity of studying these cases in his clinic. Cases No. 1, 2, 3, 4 have been fully reported by Dr. Cushing in his volume on tumors of the nervus acusticus,[1] these cases being cases XXVI, XXVII, XXVIII and XXIX in his monograph. The remaining six cases have been studied subsequent to the writing of the monograph.

I feel my limitations in writing upon this subject, but in the desire to establish the position of the Barany tests, I report my observations in the hope that others may report corresponding findings in order that the clinical status of these tests may become more clearly defined.

I. H. Jones[2] in his volume on Equilibrium and Vertigo reports examinations by the rotation and caloric tests on a series of pathological cases, among them seven cases of probable tumor of the nervus acusticus.

Ernest C. Grey[3] studied nine cases of cerebello-pontile new growths by the caloric test.

I shall now take up these ten cases of tumor of the eighth nerve, giving them in the order of their examination, with a brief resumé of their history and clinical findings, the report of the Barany tests as recorded by me on their charts, the operative findings by Dr. Cushing, and in a few cases the post-operative Barany Test findings.

Case 1. Mrs. R. A. D., 29, P. B. B. H., Surg. No. 5,712.

Complaint and History. Headaches, diplopia, failing vision, twitching of left side of face and sudden deafness in left ear. No tinnitus. Onset three years ago with twitching in face and deafness. Progress steady. Bilateral choked discs. Palsy of the left external rectus muscle. Nystagmus, ataxia, deafness left ear.

Barany Test. November 13, 1916.

Spontaneous Nystagmus. Very slow and in slight excursions when looking to the left, right eye having horizontal jerks while left eye has a peculiar slow rotary motion. When looking to the right, the excursions are more rapid but not so rapid as those produced

*From the Surgical Clinic of the Peter Bent Brigham Hospital.

later by the rotation. The nystagmus is a mixture of horizontal and rotary. When looking upwards there is present a definite rotary nystagmus, excursions of good amplitude. No nystagmus when looking forwards or downwards.

Pointing Reactions. Right shoulder, elbow and leg normal. Left shoulder shows at times an inward deviation which is not constant.

Rotation. Head 30° forwards. To the right—brisk horizontal after-nystagmus to left shared slightly and to slight excursions by the left eye (left abducens palsy present). Duration, ten seconds. Past pointing—definite deviation of both arms, right 4 inches to the right; left 1 inch to the right.

To the left—brisk horizontal after-nystagmus to the right equal in both eyes. Duration, ten seconds. Past pointing—very slight deviation of left arm to the left. No deviation of right arm. Both membrana tympani are slightly retracted, otherwise normal.

Hearing. Right ear acute. Left ear nil. Weber referred to right ear.

Caloric Tests. Water, 68° F. Right ear—head 30° forward. Rotary nystagmus to left in one minute. Past pointing—outward deviation of right arm; no deviation of left. No dizziness or nausea.

Left ear—head 30° forwards. No nystagmus after five minutes. No past pointing. No dizziness or nausea.

Operation. November 23, 1916, Dr. Harvey Cushing. "Exposure of small left acoustic tumor with fragmentary intra-capsular removal. At operation the nerve consisted of the core of a tumor which evidently projected into or up to the canal in the customary fashion. Nerve incised and a small bit of tumor was projecting into cerebellum high up and anterior and almost out of reach. This was not removed."

Post-operative Barany Rotation and Caloric Tests. December 15, 1916.

Spontaneous Nystagmus. To right there is a moderately brisk horizontal nystagmus shared equally by both eyes. To left a horizontal with slight rotary tendency in both eyes, slower when looking to the left than when looking to the right. Straight ahead—none. Upwards—very slight rotary and vertical nystagmus in both eyes. Downwards—none.

Extra-ocular Muscles. Palsy of left external rectus. Axis of vision. Right eye normal. Left—inwards and slightly downwards.

Spontaneous Past Pointing. Right—none. Left—inward deviation of 2 inches on first trial; on subsequent trials done without deviation.

Rotation. Head 30° forward. To right—fairly rapid horizontal after-nystagmus of very weak amplitude. Quick component to left. Duration, ten seconds.

To left—slight rotary nystagmus of very questionable quality, to right. Duration, ten seconds. Past pointing on right rotation right—3 inches to right. Left—touches. Past pointing on left rotation—touches with both arms.

Examination of Ears. There is slight retraction of both M. T.

Hearing. A. D. Watch, 3 feet; Whispering Voice, 8 feet +; Rinné, 512 fork 15-10; Weber to right.; A. S. Watch, 0; Whispering Voice, 0; Rinné, 0. Loud yelling not heard.

Caloric. Water 68° F. Head 30° forwards. Right ear—rotary after-nystagmus to left in one minute, 30 seconds.

Case 2. T. S. R., 39, P. B. B. H., Surg. No. 5,921.

Admitted December 18, 1916. *Complaint.* Failing vision, deafness, tinnitus on left, diplopia, nausea, drowsiness, numbness left side of face. Onset one year ago. Fundi show bilateral choked discs measuring 6 D. Right abducens palsy; left is distinctly weakened.

Barany Rotation and Caloric Tests. December 22, 1916.

Spontaneous Nystagmus. A nystagmoid condition when looking to the left. None when looking to the right, upwards, downwards or straight ahead.

Extra-ocular Muscles. Weakness of both external recti muscles, most marked on right.

Pointing Tests. Touches normally on both sides.

Rotation. Head 30° forwards. To right—no after-nystagmus whatever. Past pointing—right arm 8 inches deviation to right, touching in twenty-five seconds. Left arm 2 inches deviation to right.

To left—no after-nystagmus whatever. Past pointing—left arm to left 3 inches, touching in eighteen seconds. Right arm to left 2 inches. Subjectively no nausea or dizziness.

Ears. Both membrana tympani retracted, especially left.

Hearing. A. D. Watch, 1 foot; Whispering Voice, 10 feet +; Rinné, 34-17, with 512 fork; Galton, 0.7; Weber to right. A. S. Watch, 0; Whispering Voice, 0; Rinné, 0; Galton and Weber not heard.

Patient to all tests absolutely deaf.

Caloric Tests. Water 65° F. Head 30° forward. Right ear—no nystagmus after four minutes. No past pointing, vertigo or nausea.

Left ear—no nystagmus after seven minutes. No past pointing, vertigo or nausea.

Operation. December 26, 1916, Dr. Cushing.

A tumor of the left acoustic nerve about 1 inch in diameter was removed within the capsule. Right recess not explored.

Post-operative Barany Rotation and Caloric Tests. January 19, 1917, twenty-four days after operation.

Hearing. Right ear as before. Left ear—Watch, 0; Whispering Voice, 0; Loud Conversation, 1 foot; Galton, 0.2; Low Limit, 1,024. This test made with continuous irrigation of opposite ear.

Rotation. Head 30° forward. To right—no after-nystagmus. No past pointing. No nausea or dizziness.

To left—no after-nystagmus. No past pointing. No nausea or dizziness.

Caloric Test. Head 30° forward. Water 65° F. Right ear—rotary nystagmus after two minutes. Past pointing—right arm 2 inches to right. Left arm 2 inches to right. Patient vomited in four minutes.

Left ear—rotary nystagmus to right in four minutes with slight dizziness. No past pointing.

Letter of January 1, 1919. Patient reports herself blind but otherwise perfectly well.

Case 3. Mrs. F. L. S., 30, P. B. B. H., Surg. No. 981.

Admitted March 3, 1914.

History. Headache, nausea and vomiting, thirteen months. Failing vision, four months. Ataxia, eight months. Dizziness, eight months. Paresthesia right side of face, nose and tongue, three months. Impairment of hearing on left, three years. Tinnitus, left, three years. Fundi show marked choked discs with secondary atrophy. 6 D. swelling

March 5, 1914. Caloric test by Dr. Ernest Grey. Right ear irrigated cold; moderately good nystagmus. No nausea or dizziness. No reaction movements. Left ear irrigated cold; very slight nystagmus. Right arm touched; left arm shows deviation of 6 cm. to left.

Right ear cold, left ear hot; moderately good nystagmus, slight nausea and dizziness. Slight deviation of left arm to left, varying 2-6 cm. Right arm once touched, several times deviated to right 4 cm.

Ear Examination. Membrana tympani normal.

Operation. March 12, 1914, Dr. Cushing. Exploration of both lateral recesses negative April 5, 1914—no tinnitus, hearing as before. Readmitted May 2, 1914; patient in same condition.

Operation. May 5, 1914, Dr. Cushing. No tumor seen or felt in left cerebellar hemisphere. Patient discharged May 23, 1914, with presumptive diagnosis (unverified) of left acoustic neuroma. Readmitted January 2, 1917, P. B. B. H., Surg. No. 6,003. Hearing unchanged. Tinnitus—none. Ataxia present.

Barany Rotation and Caloric Tests. January 3, 1917.

Spontaneous Nystagmus. Brisk, horizontal nystagmus to both sides shared equally by both eyes. Jerks are of very short amplitude and about equal to either side. Upward—a slow vertical and rotary nystagmus which does not persist. At times when looking straight ahead there is present a slow rotary nystagmus lasting 5-6 jerks. Downward—none.

Extra-ocular Muscles. Axis of vision of right eye slightly upward and inward. Left eye straight ahead.

Past Pointing. Touches with both arms.

Rotation. Head 30° forward. To right—after-nystagmus horizontal to left. Duration, twelve seconds. No past pointing.

To left—after-nystagmus horizontal to right. Duration, seven seconds.

Ears. Both membrana tympani normal.

Hearing. A. S. nil. A. D. Watch, 5 feet; Whispering Voice, 12 feet +; Rinné, 58-16; Galton, normal; Weber to right ear. (Tested with continuous irrigation of opposite ear.)

Caloric Test. Water 52° F. Head 30° forward. Right ear—good rotary after-nystagmus in fifty-two seconds. No error or deviation on past pointing tests.

Left ear—no after-nystagmus after six and one-half minutes. No error or deviation on past pointing tests.

Operation. January 22, 1917, Dr. Cushing. Partial intra-capsular enucleation of a left acoustic neuroma. No post-operative tests made.

Case 4. Mr. A. E. L., 40, P. B. B. H., Surg. No. 6,098.

Admitted January 16, 1917, with history of gradual loss of vision of right eye, headache, staggering gait, fainting spells; duration, three years. Left ear has been "poor" all his life and he has been hard of hearing for as long as he can remember. Two years ago noticed left ear was getting very deaf. Never any tinnitus. Bilateral choked disc with swelling 2-3 D., extreme atrophy of nerve heads and chorioretinitis in left eye.

Barany Tests. January 24, 1917.

Spontaneous Nystagmus. None upward or ahead; when looking to right there is a horizontal nystagmus, very poorly sustained and of small amplitude; speed rather rapid. When looking to left there

is a brisk horizontal nystagmus very well sustained. Eye muscles show slight weakness of left external rectus.

Spontaneous Past Pointing. Right constant inward deviation of 1 inch; left—none.

Rotation. Head 30° forward. To right—horizontal after-nystagmus lasting thirty seconds.

Past Pointing. No deviation, no nausea or vomiting.

To left—horizontal after-nystagmus lasting eighteen seconds.

Past Pointing. No deviation, no nausea or vomiting.

Ears. Cerumen in left canal, when removed both M. T. are pale, glistening, very much retracted, especially left.

Hearing (with continuous irrigation of ear not tested). A. D. Watch, 4 feet; Whispering Voice, 8 feet +; Conversation, 18 feet +; Loud, normal; Galton, normal; Low Limit, 128; Rinné, 60-25.

A. S. Watch, 0; Whispering Voice, 0, 2 inches; Conversation, 3 feet; Loud Yelling, normal; Low Limit, 1,024.

Caloric Test. 60° F. Right ear—no nystagmus after five minutes. No dizziness. No past pointing.

Left ear—no nystagmus after eight minutes. No dizziness. No past pointing.

Operation. January 26, 1917, Dr. Cushing.

Intra-capsular enucleation of left acoustic tumor. Post-operative Barany tests not done.

Case 5. Mrs. C. M., P. B. B. H., Surg. No. 6,327.

Admitted February 26, 1917.

History. Pain began in right ear four years ago like sawing machine with deafness; for the past four to five months there has been a buzzing in left ear like a bee; headaches for four years. Failing vision for ten months; four months ago almost completely blind on right; the tinnitus appeared three to four months prior to onset of deafness. Has choked disc 4-5 D. bilateral.

Barany Tests. March 2, 1917.

Spontaneous Nystagmus. To right, marked horizontal nystagmus—amplitude and speed greater than when looking to right. Upwards—small rotary vertical nystagmus. Downward—none. Straight ahead—none. Eye muscles normal.

Spontaneous Past Pointing. Touches normally right and left.

Rotation. Head 30° forward. To right—horizontal after-nystagmus; good amplitude, duration, eighteen seconds. To left—horizontal after-nystagmus; good amplitude, duration, twenty-four seconds. No past pointing in either test.

Ears. Both M. T. normal.

Hearing. A. D. Watch, 0; Whispering Voice, 0; Spoken Voice, 3 feet; Low Limit, 1,024; Galton, 0.4; Rinné. A. S. Watch, 2 feet; Whispering Voice, 10 feet; Spoken Voice, normal; Low Limit, 128; Galton, 0.1; Rinné, 40-20 seconds; Weber to left ear.

Caloric. Water 64° F. Right ear—no nystagmus after five minutes. No past pointing. Tests done with head 30° forwards, 60° backward, 120° forward.

Left ear—rotary nystagmus after one minute, fourteen seconds. No past pointing.

Operation. March 13, 1917. Extensive intra-capsular enucleation of right acoustic tumor, Dr. Cushing. No post-operative Barany tests done.

Case 6. Mrs. D. C., 56, P. B. B. H., Surg. No. 6,384.

History. Uncertainty of gait three years, nausea and vomiting one year, diplopia six months, failing vision several months, numbness right side of face one year, deafness right ear four years, weakness of right side of body; no pain or tinnitus; onset of gradual deafness three years ago; had vague tinnitus like crickets chirping. Bilateral choked disc, 3-4 D.

Barany Tests. March 14, 1917.

Spontaneous Nystagmus. Straight ahead—slightly rotary; downward—none; upward—rotary; vertical—good amplitude. To right—slow rotary nystagmus.

Eye Muscles. Slight weakness of right external rectus.

Spontaneous Past Pointing. Touches properly with both sides.

Rotation. Head 30° forward. To right—horizontal nystagmus to left; duration, seventeen seconds.

Past Pointing. Right, 5 inches to right; left, 2 inches to right. Vertigo of relatively short duration.

To left—horizontal nystagmus to right; duration, thirty seconds.

Past Pointing. Left, 4 inches to left; right, 2 inches to left. Vertigo of relatively short duration.

Ears. Both canals and M. T. normal.

Hearing. A. D. Watch, 0; Whispering Voice, 0; Loudly Yelled Voice, close to ear; Rinné-Galton, 7.3. A. S. Watch, 3 feet +; Whispering Voice, 10 feet; Loudly Yelled Voice, normal; Rinné, 60-30; Galton, normal; Weber to left.

Caloric. 50° F. Head 30° forward. Right—no nystagmus after eight minutes.

Past Pointing. Right, 2 inches to right, with head 60° backward, none.

Left—rotary nystagmus after thirty seconds.

Past Pointing. Touch on both sides, with head 60° backward; nystagmus became horizontal plus a rotary tendency.

Past Pointing. Left, 2 inches to left; right, 1 inch to left.

Operation. March 16, 1917, Dr. Cushing. Intra-capsular enucleation of right acoustic tumor. No post-operative examination made.

Case 7. Mrs. K. G. B, 42, P B. B. H., Surg. No. 6,215.

Admitted March 29, 1917, with history of disturbance of taste three years, deafness right ear with tinnitus (described as roaring like ocean), numbness right side of face, headache, vomiting, ataxia. Has choked disc bilateral, 4 D.

Barany Tests. April 1, 1917.

Spontaneous Nystagmus. Straight ahead—there is a rotary nystagmus, fair amplitude; downward—rotary; vertical—good amplitude, slower than when looking upward. To right and left—horizontal nystagmus, good amplitude, brisker when looking to left. There is a slight rotary tendency when looking to right.

Eye Muscles. Weakness of right external rectus.

Spontaneous Past Pointing. Right—definite constant outward duration, 1-2 inches. Left—none.

Rotation. Head 30° forward. To right—very brisk horizontal nystagmus to left; duration, fifteen seconds. Vertigo subjectively lasts twelve seconds.

Past Pointing. Right, 3 inches to right; left, 1 inch to right. No nausea.

To left—on stopping there is a marked slow conjugate deviation of both eyes to left lasting two seconds; then there begins a very slow horizontal after-nystagmus of extremely wide amplitude lasting three seconds. This slow nystagmus merges into spontaneous nystagmus already present.

Past Pointing. Left, touches; right, 3 inches to right.

Ears. M. T. normal.

Hearing. With irritation of opposite ear. A. D. Watch, 0; Whispering Voice, 0; Spoken Voice, 0; Loud Yelled Voice, 1 foot; Low, 2,056, not heard; Galton, 4.8; Rinné. A. S. Watch, 3 feet; Whispering Voice, 10 feet; Spoken Voice, normal; Loud Yelled Voice, normal; Low, 128; Galton, normal; Rinné, 56-15; Weber to left.

Caloric. 55°; head 30° forward. Left ear—a slow rotary nystagmus after one minute.

Past Pointing. Left, 2 inches to left; right, 1 inch to left.

Right ear—no nystagmus after four minutes.

Past Pointing. Right, 1 inch to right; left, touches. Head, backward, 60°. No horizontal nystagmus.

Operation. April 7, 1917, Dr. Cushing. Partial intra-capsular enucleation of right acoustic tumor. Patient died in spring of 1918. No autopsy.

Case 8. Mrs. E. M. D., 41, P. B. B. H., Surg. No. 6,588.

Admitted April 11, 1917, with history of headache, deafness and tinnitus in left ear, dimness of vision. Deafness noticed about eight months ago, following a whistling tinnitus in left ear noticed two to three weeks before.

Barany Tests. April 18, 1917.

Spontaneous Nystagmus. Straight ahead—none; upward—fine rotary vertical twitches; to right and left—none; downward—none. Eye muscles normal.

Spontaneous Past Pointing. Right, normal; left, 1 inch deviation to left.

Rotation. Head 30° forward. To right—horizontal after-nystagmus; brisk, good amplitude lasting fifteen seconds.

To left—horizontal after-nystagmus; brisk, good amplitude lasting fifteen seconds.

Past Pointing. Left, 8 inches to left; right, 3 inches to left.

Ears. Both M. T. normal.

Hearing. A. D. Watch, 4 feet; Whispering Voice, 10 feet +; Loud Voice, normal; Galton, 0.1; Low, 128; Weber to right.

A. S. Watch, 0; Whispering Voice, 1 foot; Loud Voice, probably not heard.

Caloric. 58° F.; head 30° forward. Right—rotary nystagmus after one minute, fifty seconds. Head 60° backward; nystagmus became horizontal, of good amplitude.

Past Pointing. Right, 3 inches to right; left, 1 inch to right.

Left—no nystagmus after six minutes. No past pointing. Head back; no nystagmus or past pointing.

This patient was operated on in the Johns Hopkins Hospital, May 21, 1917, and a large tumor in left cerebellar pontine fossa was found; death shortly after.

Case 9. Mr. W. D. A., 23, P. B. B. H., Surg. No. 11,724.

Admitted December 29, 1919, with history of dimness of vision left eye for a few months; deafness and tinnitus for four to five years.

Examination Bilateral choked discs, 3-4 D. swelling with secondary atrophy. Romberg positive, tendency to fall with deviation to right on walking. Corneal reflex less active on right. Vision O. D. 20-15; O. S. 2-200.

Conclusion. Right acoustic neuroma.

A right sub-temporal decompression was done January 5, 1920, by Dr. Cushing. Internal hydrocephalus found.

Barany Tests. January 22, 1920.

Spontaneous Nystagmus. To right and left—brisk horizontal nystagmus, well sustained; upward—a rotary vertical nystagmus, well sustained; looking down—none; nystagmus when looking to left has greater amplitude and less speed than when looking to the right.

Spontaneous Past Pointing. Touches on both sides.

Rotation. Head 30° forward. To right—horizontal after-nystagmus to left, good amplitude; duration, fourteen seconds.

Past Pointing. Right, 6 inches to right; left, 4 inches to right.

To left—horizontal after-nystagmus to right, good amplitude; duration, ten seconds.

Past Pointing. Left, 5 inches to left; right, 3 inches to left.

Hearing. Left ear normal; right ear hears loud yelling only close to ear.

Caloric Tests. 60° F. Right—no nystagmus after six minutes. No past pointing. Head back 60°; no nystagmus; no past pointing.

Left—none after three minutes; no past pointing. Head backward 60°; violent horizontal nystagmus; no past pointing; no vertigo.

Operation. January 25, 1920, Dr. Cushing.

Right Acoustic Neuroma. "Tumor came readily into view in right lateral recess; a bundle of nerves, 9, 10, 11 were seen below tumor. It did not hug the outer side of the recess as much as usual, but lay farther over against the pons, and it is rather surprising that there were not more outspoken symptoms. Incision made through the capsule and a great mass of tumor was removed."

Post-operative. February 10, 1920, eighteen days after operation.

Hearing. A. D. Watch, 0; Whispering Voice, 0; 512 Fork, 0; Galton, 1.5; Moderate Loud Conversation, 2 feet.

A. S. Watch, 2 feet; Whispering Voice, 10 feet +; Rinné, 85-33; Galton, normal; Weber to left.

Spontaneous Nystagmus. To right—brisk horizontal nystagmus, well sustained. To left—slow horizontal nystagmus, well sustained. Upward—few rotary and vertical twitches. Downward—rotary and vertical fine twitches, well sustained. Straight ahead—none.

Spontaneous Past Pointing. Right arm points either 1 inch to right, to left or touches. Left arm—constant inward deviation of 1 inch with tendency to overshoot.

Extra-ocular Muscles. Normal.

Rotation. Head 30° forward. To right—ten turns in twenty seconds; good, brisk horizontal after-nystagmus to left; duration, twenty seconds.

Past Pointing. Right arm, 5 inches to right; left arm, 3 inches to right with overshooting.

To left—ten turns in twenty seconds; good, brisk horizontal after-nystagmus to right; duration, ten seconds.

Past Pointing. Left arm, 4 inches to left; right arm, 2 inches to left.

Caloric. Water 60° F. Head 30° forward. Right—no nystagmus after seven minutes. No past pointing. Left—rotary nystagmus after two minutes, thirty seconds. No past pointing. Head 60° backward. Right—no nystagmus. No past pointing. Left—rotary nystagmus replaced by a brisk horizontal nystagmus to the right. No past pointing.

Case 10. Mr. C. R. S., 38, P. B. B. H., Surg. No. 11,861.

Admitted January 20, 1920. Marked impairment of vision, severe occipital headaches, deafness right ear four years. Bilateral choked discs, 3 D. swelling. Vision, O. D. 20-50; O. S., 20-30.

Barany Rotation and Caloric Tests. January 22, 1920.

Spontaneous Nystagmus. To the right—none; to the left—horizontal nystagmus, good amplitude, well sustained; upward—none; downward—none; straight ahead—none.

Spontaneous Past Pointing. Touches with both arms normally.

Extra-ocular Muscles. Normal.

Rotation. Head 30° forward. To right—wide, slow horizontal after-nystagmus to left; duration, fifteen seconds.

Past Pointing. Right arm, 12 inches to right; left arm, 4 inches to right.

To left—wide, slow horizontal nystagmus to right; duration, sixteen seconds.

Past Pointing. Left arm, 12 inches to left; right arm, 6 inches to left.

Examination of Ears. Both membrana tympani normal.

Hearing Tests. Left ear acute; right—loud conversation only heard close to ear.

Caloric Tests. Water 60° F. Right ear—Head 30° forward. No nystagmus after four minutes. No past pointing. Head 60° backward. No nystagmus. No past pointing.

Left ear—Head 30° forward. No nystagmus after three minutes. No past pointing. Head 60° backward. A brisk horizontal nystagmus to right.

Past Pointing. Left, 1 inch to left; right, 2 inches to left.

Operation. January 22, 1920, Dr. Cushing. Right acoustic neuroma partially removed.

Post-operative Barany Rotation and Caloric Tests. February 17, 1920, twenty-six days after operation.

Hearing. A. D. Watch, 0; Whispering Voice, 1 inch; 512 Fork, 23-35; Galton, 2.8.

A. S. Watch, 3 feet; Whispering Voice, 10 feet; 512 Fork, 80-35; Galton, 0.1; Weber to left.

Spontaneous Nystagmus. To right—horizontal, with slight rotary tendency; good amplitude, well sustained. To left—horizontal, well sustained, good amplitude. Upward—vertical nystagmus well sustained. Downward—vertical nystagmus well sustained. Straight ahead—none.

Extra-ocular Muscles. Normal.

Spontaneous Past Pointing. Right arm, touches; left arm, deviation of 1 inch to right.

Rotation. Head 30° forward. To right—good horizontal after-nystagmus, brisk; duration, fourteen seconds.

Past Pointing. Right, 3 inches to right; left, 1 inch to right.

To left—good horizontal after-nystagmus, brisk; duration, thirteen seconds.

Past Pointing. Left arm, 4 inches to left; right arm, 1 inch to left.

Caloric Tests. Water 60° F. Right ear—head 30° forward. No nystagmus after four minutes, fifteen seconds.

Past Pointing. Right, touches; left, 1 inch to right.

Head 60° backward. No nystagmus.

Past Pointing. Right, touches; left, 1 inch to right.

Left ear—rotary nystagmus after two minutes, forty-five seconds.

Past Pointing. Left, 3 inches to left; right, 2 inches to left.

Head 60° backward. The rotary nystagmus becomes horizontal; good amplitude and speed.

Past Pointing. Left, 3 inches to left; right, 2 inches to left.

SUMMARY.

Spontaneous nystagmus was present in all ten cases. It was present when looking upward in seven cases (four right-sided lesions, three left-sided). It was present when looking to one side or the other in nine cases (one case showed only a rotary vertical nystagmus on looking up).

With the right-sided lesions, the nystagmus to the left was in three cases greater than when looking to the right. In the other two cases equal to right and left.

With the left-sided lesions, in one case nystagmus when looking to the right was greater than that when looking to the left. In one case, the nystagmus when looking to the left was greater than that when looking to the right. Two cases (one right, one left) showed only nystagmus to the left. Downward looking induced nystagmus in one case.

Spontaneous Past Pointing. Seven cases showed normal past pointing reactions. One case (left-sided) showed slight tendency to deviation inward of left arm. One case (left-sided) showed definite outward deviation of left arm. One case (right-sided) showed definite outward deviation of right arm.

Rotation Tests. After-nystagmus of proper type and in proper direction was obtained in nine cases. It was absent entirely in one case (Case 2). One case showed tendency to conjugate deviation to side opposite to lesion.

Time of After-nystagmus.

		Time given in seconds
Right-sided lesion	Rotation to the right—	15, 14, 15, 17, 18
Five cases	Rotation to the left —	16, 10, 3, 39, 24
Left-sided lesion	Rotation to the right—	15, 0, 10, 12, 20
Five cases	Rotation to the left —	15, 0, 10, 7, 18

Past Pointing. Three cases showed no past pointing.

One case showed, when rotated to side opposite to lesion, inward pointing on the side of the lesion. No past pointing on other side.

One case only showed normal past pointing reactions on the two sides.

One case (Case 2) showed normal past pointing with absence of after-nystagmus. In this case the past pointing, though normal in direction, was diminished.

Normal past pointing reactions were obtained in five cases. In all of these the past pointing was normal for direction but showed decrease in distance of past pointing.

Hearing. Deafness was absolute on side of lesion in three cases. Loud voice was only heard close to ear on side affected in five cases. Conversation heard close to ear on side affected in two cases. No impairment of hearing on opposite side.

(The hearing tests were all done while continuous irrigation of opposite ear was being carried on.)

Examination of the ear drums showed normal membrana tympani in the majority of cases, remaining cases showed retraction.

Caloric Tests. In all the cases there was a failure to obtain after-nystagmus with cold water from vertical canal stimulation on the side of the lesion. With stimulation of the horizontal canal (tested

with head 60° backward) in the six cases that were tested in this manner, there was a failure to produce after-nystagmus. There was an entire absence of past pointing when the ear on side of lesion was stimulated.

In four cases no after-nystagmus was obtained after stimulation of ear opposite to the side of the lesion with the head in the 30° forward position. In the two cases tested with head 60° back, a horizontal after-nystagmus in normal direction was obtained. In the other two cases with failure to produce after-nystagmus from stimulation of ear opposite to side of lesion with head in 30° forward position, the test was not done with head 60° backward. In these four cases there was an absence of past pointing reactions.

In six cases the nystagmus following irrigation of ear opposite to side of lesion appeared within one and one-half minutes. In one case in thirty seconds, in one case fifty-two seconds.

In four of these cases past pointing normal for direction but diminished in extent was present. In the other two cases no past pointing present.

CONCLUSIONS.

In ten cases of unilateral tumor of the nervus acusticus, tested by the Barany rotation and caloric tests in the manner described by I. H. Jones,[2] reactions were obtained which in the great majority of the cases might be described as typical. These typical reactions are:

1. Unilateral deafness on side of lesion varying from absolute to a marked involvement.

2. Failure to obtain by the caloric test after-nystagmus and past pointing from stimulation of the labyrinth on the side of the lesion; and in some cases failure to obtain after-nystagmus and past pointing from stimulation of vertical canals of side opposite to lesion.

3. The time of the after-nystagmus obtained by rotation, as a general rule, is decreased but does not show that there is blocking of one labyrinth. Rarely there is found a halving of the after-nystagmus time when rotation to the side opposite to the lesion is done, due in my opinion to the compensation resulting from the chronicity of the lesion.

4. The past pointing tests following rotation, as a rule, do not show any reactions that might be classed as typical. The reactions are abnormal, and are probably influenced by involvment of the cerebellum through direct or indirect pressure.

5. In two cases with failure to produce nystagmus from caloric test of the unaffected side, where post-operative tests were made by

the caloric test, they showed absence of nystagmus and past pointing reactions on the side of the lesion, with practically normal response from stimulation of the opposite side. This finding agrees with that of Eagleton,[4] who recognized that increased intra-cranial pressure affected the side opposite to the lesion. In my opinion the increased pressure affected the side opposite to the lesion. In my opinion the increased pressure present in all these cases is responsible to a great extent for the irregular reactions found by the rotation tests.

6. Post-operative tests of the cochlear function of the side involved, showed an increase in its function in some of the cases.

7. Unilateral paralysis of external rectus may cause unequal involvment of the eyes in the spontaneous nystagmus. In after-nystagmus by stimulation this is a negligible factor.

8. The reactions described in the above cases are quite similar to those reported by Jones[5] in Cases 26, 27, 28, 29, 30, 31, 32 of his monograph.

Jones states from his experience with cerebello-pontile angle lesions it is frequently shown that the vertical semicircular canals of side opposite to the lesion fail to respond to stimulation. This has occurred with such uniformity that no symptom complex appears to be complete without it. He feels that this is due to pressure transmitted across the midline. This experience of Jones has been confirmed to some extent by my observations, though in the majority of cases response normal for type but delayed in appearance time is obtained from the contra-lateral side.

Grey[3] in nine cases of cerebello-pontile tumors obtained reactions similar to the above in four cases. He found absent responses in one case and doubtful responses in one other case.

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PER-ORAL ENDOSCOPY AND LARYNGEAL SURGERY.

SPECIAL EDITORIAL DEPARTMENT.

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Spasm at the Entrance of the Esophagus. Adam Brown Kelly[1] discusses clearly and at length that form of dysphagia, produced by spasm at the entrance of the esophagus, which is frequently seen in middle-aged women. The etiology and pathology of the condition have never been satisfactorily explained. No history of burning of the throat with hot fluid or corrosives can be obtained. Many of the patients are nervous, and a few are neurotic, but most all state that they were not nervous until after the dysphagia developed. Hysteria can be excluded by the other stigmata of that neurosis. The frequency of spasm in the hypo-pharynx in women is striking and suggests a possible predisposition in women to lesions in this region. In Kelly's experience cancer at the mouth of the esophagus occurred in 75 per cent of his cases in women, while of those occurring elsewhere in the esophagus, 80 per cent were in men. The frequency of the onset of the dysphagia following the lodgment of a foreign body suggests injury as a primary cause. Jackson is quoted as having many times observed spasm of the esophagus resulting from lesions that produced no sensation themselves. A disturbance of the Auerbach (motor), Meissner (sensory) nerve plexus may so complete a reflex arc, which, having for its initial stimulus a foreign body, a fissure of local inflammatory lesion, may be perpetuated in recurring spasm by nerve-cell habit. We must also remember that cancer of the esophagus may be first evidenced by spasm at either of its orifices. No relation of the condition to syphilis either by Wassermann or therapeutic tests could be made out. Patterson calls attention to the association of a superficial glossitis, with a similar dry, thinned condition of the mucosa of the pharynx and hypo-pharynx, with this condition of spasm at the mouth of the esophagus. Pathologic examinations of portions of the mucosa removed from the tongue show a thinning of the superficial layers and an infiltration of the underlying tunica propria. He suggests that this may account for a lack of resiliency, which may increase the difficulty in the passage of food. Because of this lack of resiliency of the mucosa, it is pointed out, great care is necessary in examining the parts with the esophagoscope, for but slight force serves to break the mucous coat and

perforation of the esophagus may easily result. A definite train of symptoms can usually be elicited. There is a history of some difficulty in swallowing for years with occasional attacks of choking. The dysphagis gradually increases, and the periods of intermission become less frequent. Choking attacks finally become an almost constant accompaniment of the swallowing act. There are sensations of constriction in the region of the larynx, frequent catching of small food particles at this level, with distressing efforts to dislodge them; regurgitation of fluids on attempting to wash down the impacted body; nervousness in regard to eating, especially in the presence of strangers, and a preference to have meals alone and at leisure. There is often markedly increased flow of saliva and the corners of the mouth are often cracked due to saliva trickling out during sleep. Marked anemia and wasting is often seen.

The diagnosis of this as well as of all esophageal conditions is to be made with the esophagoscope and by a radiographic study of the swallowing function and chest. The treatment consists in dilatation of the upper esophagus and should be done esophagoscopically and not blindly. A single passage of the esophagoscope may cure the trouble in some cases. Relapses are common, however, but usually yield to further treatment.

Carcinoma of the Post-cricoid Region. From a careful study of 140 cases, A. Logan Turner[2] has evolved very valuable data and observations on cancer of the lower pharynx and esophagus. Statistics show that malignancy is the most frequent cause of esophageal stenosis and that the neoplasm is commonly located at anatomical narrowings of the lumen; the mouth of the esophagus, the aortic, bronchial and diaphragmatic constrictions. Because of the frequency of carcinoma in the laryngo-pharynx, this region he states should be included in considering cancer of the upper esophagus. Squamous cell epithelioma was the type in 139 cases; medullary carcinoma occurring in one case. The growths are usually single but the possibility of a second growth must be kept in mind, particularly when the question of surgical intervention arises. The disease, at first limited to the mucous coat and confined to a small area, as it grows larger involves the whole circumference of the lumen and spreads in the long axis. Later penetration of the muscular coat of the gullet and infiltration of the surrounding structures occurs. Particular attention is called to the fact that the thyroid gland is prone to be the seat of metastatic malignant growth, the primary focus being in the esophagus or laryngo-pharynx; and it is urged that preliminary laryngoscopy and, if necessary, esophagoscopy be done before operation on the gland is undertaken.

The previous observations of greater frequency of malignant disease in the upper esophagus and laryngo-pharynx in women and of the lower end of the esophagus in men is confirmed. It is interesting to note that although 86 per cent of carcinomata of the post-cricoid region are in women, malignancy of the larynx shows a percentage of 85 in favor of the male sex. It was also observed that the age incidence is less in women than in men, in over one-half the tumor was present before the age of fifty. The youngest woman was nineteen, the youngest man thirty-four. The duration of the disease is very difficult to determine, for in some the symptoms date from but a few days before the examination, while others have had dysphagia (probably precancerous) for a number of years. A lower grade of malignancy is seen in some patients than in others. Excluding two exceptional cases in young women, the average duration of symptoms in women was one and a half years. Outstanding features of the semeiology are the sometimes sudden onset of obstruction, following upon the sensation of a bone or piece of meat lodging in the throat, with no previous symptoms of dysphagia even though the tumor may be of considerable size. Gradually increasing dysphagia over a period of months is the usual history, however. Pain, in many cases referred to the ears, was associated with dysphagia in fifty-nine out of seventy-four cases. Blood-streaked mucus is sometimes expectorated, and an excessive production of mucous secretion in the throat is frequently present. Cough is usually a troublesome symptom. Hoarseness results from involvement of the recurrent laryngeal nerves or from extension of the disease into the larynx. Dyspnea requiring tracheotomy may supervene from the same reasons. The importance of careful examination of the neck by palpation, of the pharynx and larynx by mirror laryngoscopy, and of the laryngo-pharynx and esophagus by endoscopy are emphasized. Laudable caution is shown in refraining from passing esophagoscope through the cancerous mass in order to determine its lower limit. Removal of a specimen for biopsy is advised when possible. The aid of the fluoroscope and radiograph is sought in all cases.

Treatment as a rule is palliative only. Turner favors esophagostomy with subsequent insertion of a feeding tube, rather than gastrostomy, because of the opportunity the former offers for actually investigating the extent of the disease and its suitability for removal. Successful esophagostomy is dependent upon early diagnosis, and it is hoped that this may be possible in the future. Tumors of small dimension, situated on the posterior pharyngeal wall

immediately behind the upper part of the cricoid plate may be removed successfully. One case so operated upon by Mr. David Wallace is well, nine years after operation, still wearing her esophageal feeding tube.

An Intra-tracheal Tumor: Removal by Peroral Tracheoscopy. Doubtless in future medical literature many curious pathological conditions of the lower air passages will be found to have origin in the exposure to the poison gases of the recent war. The case reported by Herbert Tilley[3] was that of a very healthy and active British officer who was severely gassed on March 21, 1918. Increasing dyspnea developed, accompanied by stridor, wheezing, and a general disability which prevented his working. On June 16, 1919, the mirror revealed a normal larynx. By the maneuver of having the patient stand in a stooped position while Mr. Tilley knelt below him, the lower trachea could be well seen with the mirror. The lumen appeared filled with a pale, reddish-gray tumor which moved upward and downward with breathing, and seemed attached near the opening of the right bronchus. Under general anesthesia this pedunculated growth was removed with forceps by tracheoscopy through the mouth. The patient made an uneventful and complete recovery. Microscopic examination showed the specimen to be a "papillary granuloma," and Prof. S. G. Shattuck, the eminent pathologist, concurred with Mr. Tilley in the view that "The gas had caused a localized ulceration of the trachea, and that the granulations forming on this had assumed the formation of a tumor, which had become pedunculated owing to the tractive and propulsive influences of the inspiratory and expiratory currents of air."

Technic of Esophagoscopy. Using a frontal head light, Ledoux,[4] because of the feeble illumination afforded, performs his esophagoscopies in a dark chamber. The instrument table is lighted by a small photographer's lamp, the red glass being replaced by one of blue. The handle and the interior of the tubes are painted black and the patient draped in black so that there can be no reflected light. The author considers the distally lighted and the proximally lighted tubes give vastly better illumination but states that they unfortunately present serious inconveniences to the introduction of instruments. Ledoux has found the sitting position, using Brünning's chair, and the recumbent position unsatisfactory, and has developed his technique of esophagoscopy as follows: After preliminary cocainization of the hypo-pharynx the patient is seated upon the floor with the right leg extended and the left flexed at the

knee, the left ankle being placed under the right popliteal space. The assistant sits behind with the patient's shoulders between his knees, and his hands in the axillæ of the patient. The tube is introduced behind the arytenoid while the operator is in the sitting position. When the mouth of the esophagus is reached the operator stands and exerts slight pressure with the tip of the esophagoscope while the assistant rises from his chair and lifts the patient, thus drawing the esophagus up over the esophagoscope as one would a stocking over the leg. Seats are resumed when the tube enters the thoracic gullet, and the whole body of the patient is inclined forward. By this procedure all portions of the esophagus except the anterior wall are said to be seen. To remedy this defect the author has had constructed small oval mirrors carried by long handles to the inferior extremity of the esophagoscope.

Artificial Esophagus. The surgical technique consists in the moving of a short loop of the jejunum to a bed under the skin of the chest and the implantation of one end of this loop into the stomach. The skin is then incised to the right and left of the median line, these parallel incisions being from 6 to 7 cm. apart. The inner lips of the two incisions are turned back and sutured together, thus forming a skin-lined tunnel from the throat to the stomach. The stump of the esophagus is brought out through the skin in the neck and sutured to the upper end of the skin-lined tunnel. Then the lower end of the latter is sutured to the short segment of the bowel loop that has been brought up to bridge the gap between the skin tunnel and the stomach. In all of the steps of the operation care is made to leave sufficient blood supply to all parts. Hirschmann[5] has excellent results in three cases with absolutely impermeable esophageal stenosis, one of whom is in the best of health, a year and a half after the operation.

Diagnosis and Surgical Treatment of Intra-thoracic Goiter. Palliative Tracheotomy. Tracheostenosis. (Gustav Schwyzer).[6] Much in this interesting article is of value to the laryngologist, for he is often and properly consulted for relief of the dyspnea which may be the only outstanding symptom of the condition. The anatomy of the mediastium is reviewed. Particular attention is called to the small size of the superior aperture of the thorax which is filled completely by the structures which normally pass through it, these structures undergoing serious compression when pathological masses are present. Laryngoptosis may be present. Paralysis of one or both cords may be evidenced by hoarseness. Compression of the trachea produces the most serious degree of dyspnea and

may be seen at times with the mirror. (The author does not seem to have had the benefit of endoscopic aid in these cases.) Collapse of the trachea during goiter operations was observed in three cases; the trachea was flaccid like the sail of a boat and filled out during expiration, its walls collapsing during inspiration. Tracheotomy was performed in two of these cases and the author emphasizes the importance of the tracheal cannula as a part of the instrument armamentarium. Atrophy of the tracheal cartilages due to the pressure of the goiter is reported, the mass acting the part of a splint, which when removed allows collapse of the tracheal walls. Compression of a bronchus or of the lung may be present. It is important to remember that dyspnea may be the result of impaired heart action, since the goiter may be of the toxic variety, or pressure of the tumor on the large vessels of the thorac may produce the so-called "mechanical goiter heart." A characteristic symptom of the latter is the net of dilated surface veins of the neck and upper chest, collateral venous circulation which drains into the inferior vena cava. The importance of fluoroscopic and radiographic examination is emphasized. The author uses local anesthesia in the toxic or dyspneic cases, a practice which is probably a factor in his excellent results. No mention is made of intra-tracheal anesthesia, the use of which the reviewer believes, much reduces the chances for mortality from tracheal compression in goiter operations and is the safest method for the administration of general anesthesia in thoracic surgery.

Laryngo-tracheal Stenosis from Yperité Gas. (Lannois and Sargnon).[7] The serious and delayed damage to the lower air passages caused by exposure to the war gases is well typified by the report of a young artilleryman who, following exposure to yperité, developed an ulcerative laryngo-tracheo-bronchitis. With the healing of the ulcerations increasing dyspnea developed, necessitating tracheotomy. Lower bronchoscopy showed the trachea ulcerated in places, filled with large masses of purulent material, and extremely stenosed from the level of the larynx to the carina. Because of the small size of the bronchial orifices it was impossible to enter the bronchi and attempts to dilate the trachea were unsuccessful. There was no evidence of lues in the patient or his parents and he had previously been in excellent health. There was no history of tuberculosis in the patient or his family; it was, however, feared that tuberculosis infection would occur because of the lowered resistance of the parts and the poor condition of the patient. In the same article a case of Jacod's is cited in which a young soldier exposed to yperité

on July 31, 1918, developed a progressive subglottic stenosis and purulent, edematous tracheo-bronchitis. Tracheotomy was done without relief, and the patient died on October 17, 1918, from broncho-pneumonia.

Morell MacKenzie, the Father of British Laryngology, Founder of "The Journal of Laryngology." (James Donelan).[8] Laryngology as a department of medicine and surgery dates from the laying of the foundation by Sir Morell MacKenzie. The present generation of laryngologists will be interested in this brief biography of a truly great man written by one who was intimately associated with him for a period of fifteen years. It cannot be abstracted in a way that would lessen the necessity of reading the entire article.

1. *Jour. Laryn., Rhin., Otol.* London, 1919, Aug., Vol. XXXIV, p. 285. (D. R Patterson Ibid., p. 289.)

2. *Jour. Laryn., Rhin., Otol.* London, 1920, Feb., Vol. XXXV, p. 34.

3. *Jour. Laryn., Rhin., Otol.* London, 1920, Jan., Vol. XXXV, p. 1.

4. *L'Oto-Rhino-Laryngologie, Internat.* Sept., 1919, p. 353.

5. *Therapie der Gegenwart.* Berlin, Oct., 1919. Vol. 60, No. 10, p. 368.

6. *Jour. A. M. A.*, Feb. 28, 1920, Vol. 74, p. 597.

7. *Rev. de Laryngol. d'Otol. et Rhinol*, 1919, August, No. 16, p. 409.

8. *Jour. Laryn., Rhin., Otol.*, 1919, June, p. 181.

THE BRONCHO-PERISCOPE.

Dr. Wolff Freudenthal, New York.

For several years past it had been my intention to construct a bronchoscope with several new features. With the instruments now in use one can see in a straight direction only, while with my proposed modification it would be possible to combine the indirect method with it. In other words, one should be able not only to see in the direction of A B (Fig. 1), but also in that of A B C, A B D, A B E, etc.

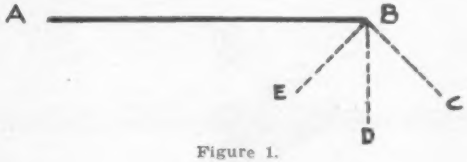

Figure 1.

It was furthermore my intention to have within the bronchoscope a tube for suction so that the introduction of a special tube for the purpose of removing blood, pus, etc., should become unnecessary.

A cross section of the proposed instrument would have looked somewhat like Figure 2, i. e., there would have been three small tubes within the instrument: one for conveying the light, the other for carrying the wire connection for the intended new mirror, and

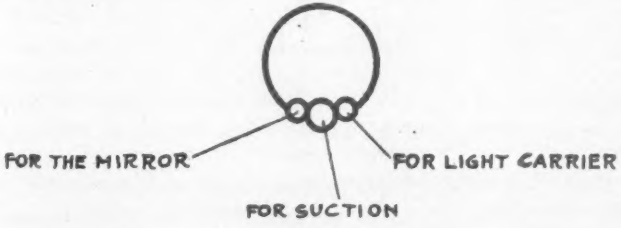

Figure 2.

the third for suction. The last, I regret to say, had to be dispensed with, since it would have made the instrument too bulky.

Because of war conditions it was well nigh impossible to have any new instrument constructed in New York City or elsewhere,

even before the United States entered the war. I am, therefore, greatly indebted to Mr. Th. Maijgren, President of the Electro-Surgical Instrument Company of Rochester, N. Y., who, in spite of great obstacles, finally succeeded in having one made for me.

The problem before us was (1) how to attach a mirror at the distal end of the bronchoscope in such a manner that it would be easily placed in any desired position without interfering with respiration, similar to the indirect method; (2) to provide a lighting device arranged in such a way that vision would not be obstructed on introducing the instrument, and on the other hand sufficient light be thrown on the mirror to get a good view. To accomplish the first object a longitudinal piece was cut out at the distal end of the bronchoscope, in which the mirror could be placed and moved in different directions. This shape was adopted because a round mirror

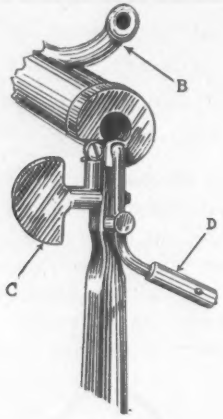

Figure 3.

would not have given sufficient light on account of the small calibre of the instrument (bronchoscope). From the mirror, which is of metal, a thin wire enclosed in a narrow tube passes to the ocular end of the bronchoscope, where there is a knob at C with which the excursions of the mirror can be easily controlled (see Fig. 3). This figure (3) shows only this one end of the bronchoscope, taken from a posterior aspect.

To throw light on this small mirror it was necessary to have the illumination close by, and it was the most natural thing to use Jackson's type of bronchoscope for this purpose. Here we have a miniature lamp which is hidden in a groove and out of the way,

and which gives an excellent light. In bronchoscopic examinations as a rule it does not make any difference whether the light is placed at the distal or proximal end, the rays having to travel to the eye the same distance either way. In fact, some bronchoscopists, including Killian himself, consider it advantageous for the lamp to be near the observer's eye. No doubt a good light can be obtained from Bruening's lamp, but in the broncho-periscope described here it is evident that the illumination should be near the mirror. Therefore the instrument has an auxiliary tube for the reception of the light carrier and lamp, as patented by the Electro-Surgical Instrument Company. The light is needed there not only to illuminate the parts in front of the bronchoscope, but particularly so that it can be thrown on the mirror in whatever direction it is needed. The maximum amount of light is obtained when the mirror is tilted upwards as far as it will go.

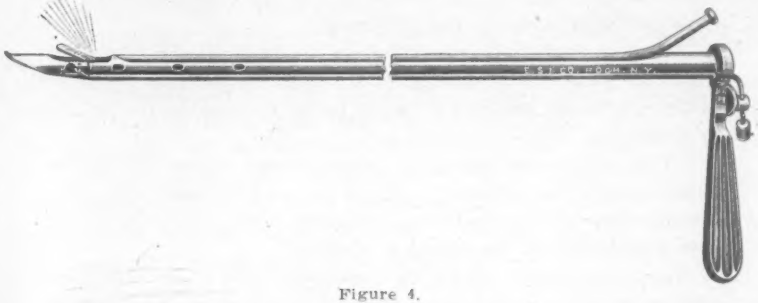

Figure 4.

The mirror is manipulated in a very simple way. On introducing the instrument it is turned parallel to the longitudinal axis of the bronchoscope. When you want a sideview, the mirror is tilted slowly until the right light is obtained. Then on withdrawing the instrument the mirror should again be placed in the first position. All this can be done easily by turning the handle C, whose excursions are small. (Fig. 3.)

At D there is an attachment for the electric current, and at B the anesthetizing tube devised by Dr. T. D. Buchanan.

The distal end of the broncho-periscope in front of A, Figure 4, had to be reversed because the mirror had to be attached at that point; that is compared with the Jackson bronchoscope it was made upside down. For that reason its introduction may occasionally be a little difficult, but this can be easily overcome.

ESSENTIAL POINTS IN SUCCESSFUL LARYNGOLOGICAL PRACTICE—ILLUSTRATIVE CASES.*

DR. L. HERBERT LANIER, Texarkana, Tex.

The multiform variety of diseases which may affect the larynx, increase the difficulty of diagnosis, and in view of the profound impression upon a patient that a disturbance of function of the larynx may make and the necessity of keeping this vital organ in a healthy condition, one could hardly exaggerate its importance.

I trust I may be pardoned for the seeming presumption when I state that every laryngologist should equip his office and the hospital where he operates with every modern instrument and appliance necessary to diagnose any disease of the larynx or to operate for any condition of the larynx needing it.

We may often find some pathologic condition of the larynx that does not yield to any remedy, until a more thorough study of the case reveals the hidden etiological factor responsible for its continuance.

Certainly our attention is too often focused on the condition as manifested in and adjacent to the larynx and not sufficiently often on the umerous active pathologic processes remote from the larynx, yet responsible for the laryngeal affection.

To discover and eradicate the underlying cause is the first essential in treating any laryngeal affection, predisposing and contributing factors also should be outlined and given due consideration, obstructive lesions within the nose and naso-pharynx must be removed by appropriate operative procedures.

Pulmonary, cardiac, gouty and rheumatic affections and anemia should be relieved by appropriate measures, if associated with evidence of syphilis or tuberculosis, these diseases should receive proper treatment.

In my opinion the use of tobacco should be prohibited in all laryngeal affections and hazardous occupations should be changed to those with more wholesome surroundings.

We are all aware that disease prevention is accorded too little attention by all physicians not engaged in public health work, but the work done in some of the army base hospitals during the win-

*Read by invitation before the Southern Section of the American Laryngological, Rhinological and Otological Society in New Orleans, April 27, 1920.

ters of 1917-1918 and 1918-1919 in preventing the spread of acute respiratory disease should serve as a stimulus to encourage similar activities in civilian practice.

We are constantly traveling in the borderland between health and disease and this point of view should serve to increase our efforts to prevent disease.

I believe that every individual should have the nasal and naso-pharyngeal secretions submitted to a competent bacteriologist to determine if he be either a transient healthy carrier, a chronic healthy carrier or a diseased carrier of the pneumococcus, bacillus diphtheria, meningococcus or streptococcus. This would enable us to isolate the carriers and institute measures to disinfect them, that the menace to the health of the country through acute respiratory disease might be checked.

The use of post-nasal sprays of dichloramin-T seems to be the best disinfectant in these cases.

Dr. Spooner of Boston has written a very excellent article on this subject showing the alarming percentage of carriers that we daily associate with.

I think thyroid surgery should be done by laryngologists. Certainly they are the ones who should know most concerning the anatomy and pathology of this region. Anyone doing this work will occasionally have either a temporary or rarely a permanent loss of voice. In the patient following thyroidectomy, the causes of which are (1) trauma of the larynx and trachea; (2) trauma of the inferior recurrent laryngeal nerve; (3) syphilis, and (4) hysteria.

To prevent all trauma, measures to safeguard the nerves and the trachea from injury should be taken during operation and a trained anethetist and skilled nurses are essential.

If post-operative laryngoscopic examinations show bilaterial adduction paralysis alone then it is surely due to hysteria.

Donald has written most interestingly on the loss of the voice following thyroidectomy.

Syphilis of the larynx is often overlooked and more often diagnosed as some other malady, and I am not willing to believe that syphilis of the larynx and the tracheo-bronchial tree is nearly so rare as some investigators would have us believe.

Dr. Sidney Israel has written an excellent article on syphilis of the tracheo-bronchial tree showing that laryngeal involvement is quite common. In these cases he says, "The fact that out of fifteen cases thirteen were recognized by laryngoscopic examination, emphasizes sufficiently the importance of early laryngoscopic or endo-

scopic examination." The higher up the location of the lesions the easier it is recognized and the more responsive it is to mechanical measures.

The attention of the laryngologist is called to what appears to be one of the most important diagnostic signs in syphilis of the tracheo-bronchial tree. It was given us by Gerhardt, who stated that in "spasmodic and stridulous breathing a vertical laryngeal movement of less than one centimeter is a certain sign of tracheal or tracheo-bronchial stenosis." In only one case in a series of six was there more than a faint movement. This will have to be more extensively observed before it can be considered reliable.

The necessity of caution in examining and diagnosing laryngeal conditions is shown by history of the following case of removal of a foreign body from the larynx.

Case K. Girl, age two years, obstruction to breathing began eight days before I saw her; cough had been violent from the first day of attack and fever up to 101°. Her physician had at first diagnosed the case as "croup" with bronchitis, but after two days gave her large doses of antitoxin, not withstanding no cultures from the secretions had been made and no diphtheritic membrane had been seen. The increasing dyspnea and cyanosis caused alarm and she was referred to me.

I suspected a foreign body in the larynx or trachea and I had an X-ray picture made which showed a foreign body in the larynx.

Of course indirect laryngoscopy was impossible and on account of the great obstructions and edema of the glottis, I did a preliminary tracheotomy and then proceeded with direct laryngoscopic examination, using a small-size Jackson laryngeal speculum. A small metal ring 14 milimeters with a 6-mm. perforation in center, what was apparently part of a door lock, was found embedded in the larynx between the chords and extending into the glottis, and while there was considerable edema of all parts of the larynx, the ring was easily removed.

It was necessary to wait six days before removal of the tracheotomy tube on account of edema of the larynx, otherwise the patient had a beautiful convalescence.

The importance of correct diagnosis in laryngeal cases is shown by the history of the following cases.

Case G. Acute catarrhal laryngitis. Female, age 20, postal clerk, had chronic rhinitis, but came to me because of hemorrhages from larynx which were alarming to her and the family. She had consulted and was treated by another physician who had made intra-

laryngeal applications of strong astringents which were painful and aggravated the symptoms. This treatment was alternated by insufflations which are likewise ill-advised on account of the paroxysms of cough which they produce. She had been told that she had laryngeal tuberculosis and that she must go to New Mexico at once, and this she was arranging to do. I found hoarseness and a dry hacking cough, sensation of burning and itching in larynx, temperature of 101°, very nervous over hemorrhages and loss of weight, the laryngeal mucosa appeared intensely inflamed, cords very red and there was infiltration which involved the arytenoids, ventricular bands and rim of the epiglottis interfering with the free movement of the vocal cords.

Treatment: I put her to bed, forbid any conversation, ordered free calomel and saline purgation, ice coil to larynx for three hours, codiene gr. ¼ every four hours for cough and to minimize the muscular movements of the larynx, gave her steam inhalations medicated by camphor and menthol alternated with spray into the larynx with lemon juice and adrenalin 1-5000 equal parts in Tannin glycerid.

This patient had no hemorrhages after twelve hours of this treatment; she was able to visit my office in a week and a few treatments by intra-laryngeal injections of a 2 per cent solution of camphor and menthol in benzinol marked the end of her treatment with uneventful recovery.

My chief aim in giving history of this patient is not to show any originality in method of treatment but to stress the importance of correct diagnosis, that working people in poor circumstances may not have to leave home and quit work because of a mistake in diagnoses.

Case H. Laryngeal tuberculosis. Male, age 34, height 6 feet, weight 132. This patient had pulmonary tuberculosis for over one year before the laryngeal involvement was noticed. A sojourn of a years' duration in high, dry climate had done no good. He had been treated routinely and told to prepare for the end; small hemorrhages frequent.

This patient had a badly deflected septum, painful dysphagia, diseased tonsils and a chronic pharangitis. I straightened the septum and removed the tonsils. The cough was excessive and unproductive and aggravated the larynx lesion.

I ordered codiene ¼ gr. every four hours and cracked ice to be sucked and applied externally at intervals and the use of tobacco, of which he was a constant smoker, interdicted. A 5 per cent

solution of formalin in glycerin to larynx twice daily and orthoform lozenges given to dissolve in mouth several times daily to relieve the difficulty in swallowing. The nose and naso-pharynx were always thoroughly cleansed by alkalin sprays before the laryngeal treatment was attempted.

He improved greatly in weight, appetite and appearance but the painful dyphagia continued until the diseased epiglottis was amputated or partially so. After this his improvement was rapid and twelve months' treatment effected a cure.

I am aware that many writers offer no encouragement in the treatment of this disease and claim that treatment will avail nothing so far as cure is concerned, yet this man has recovered not only from laryngeal tuberculosis but from its invasion of his lung tissue, and I may say that I am grateful for the assistance of an internist, who insisted on this man living as a tuberculous subject should.

I have had no experience in the administration of tuberculine in laryngeal tuberculosis, but from the encouraging report of Dr. Hill Hastings and other laryngologists, I intend to give it a thorough trial in selected cases, and I am convinced that Dr. Samuel Iglauer has done more thany anyone in this country to get the profession to recognize the importance of the electro-cautery treatment, and I shall in the future use this treatment in cases where there are no contra-indications.

Case K. Intra-thoracic goiter. Female, age 24, had been treated for goiter several years previous to consulting me, but it had apparently disappeared. She had consulted a number of competent surgeons. There was difficulty in deglutition, there was reduction in the excursions of the larynx during deglutition, there was hoarseness and partial paralysis of the right vocal cord, there was tachycardia nervousness and considerable dyspnea and tremor.

I could not see into the trachea without the aid of bronchoscope, the carotid and radial artery of right side were almost imperceptible.

I had an anterior and a lateral roentenogram made, which cleared the diagnosis, showing intra-thoracic goiter, and in a subsequent fluroscopic examination the tumor followed the movements of the larynx and trachea regularly.

I refused to operate on this patient because she had discharging sinuses and pyorrhea, local infection being feared after operation.

She went to a large clinic in the North, was operated on and got along beautifully for ten days, when a mediastinal abscess developed from which she died three weeks later. This serves to remind

us that the danger associated with operations on the upper respiratory tract may be minimized by canvassing all of the contiguous territory and make sure that there are not present any active focci of infection such as decayed teeth, pyorrhea, alveolar abscesses, peritonsilar abscess, pharyngitis, discharging sinuses or purulent rhinitis. The inhalation of blood mucus and infected wound discharges usually cause pneumonia following operation on the upper respiratory passages. This should be guarded against as much as possible. Crile says "these dangers may be prevented in part by scrupulously maintaining a dry field during the entire course of the dissection."

The field should be kept clear of blood by immediately picking up every vessel large enough to be considered at all. The control of hemorrhage by posture is desirable in selected cases.

The practice of suspension of laryngoscopy has done more to focus the attention of the profession on the importance of properly diagnosing and treating laryngeal diseases than any other advancement in this direction for years.

Dr. Robert Lynch is worthy of the debt of gratitude we owe him for his great efforts in perfecting instruments and a technic that makes this work interesting and of decided value; yes, I will say indispensable, since with it non-malignant tumors, papilloma, pedunculated fibroma, vocal nodules, cyst of the aryteno-epiglottic fold, pachydermic laryngitis, etc., can be operated upon or treated with greater deliberation and skill than with other methods.

Dr. Henry Harrower of Los Angeles a few years ago wrote a splendid paper on the relationship between certain of the glands of internal secretion and disorders and diseases in our special field.

I have since then closely observed all cases for thyroid inadequacy that suitable thyroid medication might be instituted.

Acidosis should engage our attention to the extent that no operation should be performed on the larynx or elsewhere without a urinalysis and blood test to determine if the patient has it, unless it be an emergency operation.

I believe all of us have had patients suffer after operation from marked acid intoxication and even death that could have been prevented had we known that acidosis was the cause by simply giving a rectal enema of 4 ounces of 5 per cent bicarbonate of soda solution. If acidosis is discovered before operation 15 grains of bicarbonate of soda three times a day for three days and 45 grains injected in rectum immediately before operation with no meats and a vegetable diet, will neutralize the acids.

I could report at least two interesting cases of acidosis following tonsil and adenoid operations if my time were not limited.

I have come to the conclusion that laryngologists in each city should agree on which instruments each should purchase, of course not considering ordinary instruments in every-day use. I mean, to have them purchase all the modern appliances, instruments and radium necessary in the practice of each and then co-operate with each other as much as possible in treating rare cases. Certainly the purchase of all the equipment necessary at this time is done by few laryngologists.

A case I have under treatment now illustrates the point I wish to make. I had a child brought to me three years ago for tonsil and adenoid operation. The breathing was difficult; a thorough removal was done of both but the dyspnea continued and became so bad that a tracheotomy was done. Direct laryngoscopic examination showed multiple papillomata; these were removed when discovered, only to return so that tube could not be removed. A second removal under direct laryngoscopy was done and after two months the symptoms were as bad as ever, when the tracheal tube was closed due to the recurrence of the papilloma. I then decided to do fulguration through a direct tube but failed because of contraction or a marked thickening and fibrosis. Then it was that I wanted radium and could have hastened the cure of this patient with it, but did not have it, as one cannot have everything.

I decided to leave the growth absolutely alone and recently to my surprise I found that the child could dispense with the tracheal tube and that the growths had disappeared.

In presenting this paper it is not with the desire to claim originality in method of treatment, but rather to emphasize the importance and of systematic routine, thoroughness in diagnosing and treating each case of laryngeal disease.

231-4 State National Bank Bldg.

THE NEW YORK ACADEMY OF MEDICINE.

SECTION ON OTOLOGY.

March 4, 1920.

The Deaf Child. DR. MAX GOLDSTEIN, St. Louis, Mo.

(*Published in full in this issue of* THE LARYNGOSCOPE.)

DISCUSSION.

At the close of the address, Dr. Phillips asked Dr. Goldstein to converse with a young man from the audience, a total stranger to him, who had been deaf since babyhood. The two stood some eight or ten feet apart, and the young man responded intelligently and in an excellent voice to a number of inquiries.

DR. GOLDSTEIN remarked that recently in a discussion with a number of others on the subject, it was agreed that a child who lost his hearing under two years of age was practically congenitally deaf, and that the acquisition of speech and lip-reading to the high degree shown by this young man was a great accomplishment.

DR. PHILLIPS said that he had never seen but one lip reader better than this young man. He could even understand and appreciate slang. He had had no oral training at all and depended entirely upon the lips.

The Government's Work for Deafened Soldiers at Cape May: With Cases for Demonstration. DR. CHARLES W. RICHARDSON, Washington, D. C.

(*Published in full in this issue of* THE LARYNGOSCOPE.)

DISCUSSION

At the close of Dr. Richardson's paper he introduced Miss Rockwell, one of the teachers at Cape May.

MISS ROCKWELL said that in giving lessons to the men every effort was made to render the work interesting to them, by stories and attractive devices, such as mirror study. One of the first lessons was given to a man who had never heard of lip-reading in his life, but while he was in the trenches he found he was losing his hearing and of his own accord he took out his trench mirror and taught himself very much. Later he lost most of his hearing.

She then gave a demonstration with one of her pupils:

Question: How long did you take lip reading lessons? Answer: Seven weeks.

Question: Do you hear my voice? Answer: No.

Question: What is your name? Answer: F.....

Where do you live? Answer: In Brooklyn.

The first lessons are the simple vowel and consonant sounds, a, e, i, o, and u; then the consonants, f, b, p, t, m, etc.; then combinations of these into syllables, pa, ma, me, my, so, sho, she etc., etc.; then two syllables omoo, amy for me, forma, formoso, etc., etc.

In continuation of the conversation, she recited a sentence and he repeated it after her, or replying to any question put to him.

DR. PHILLIPS introduced Miss Peck as a well born, well bred woman who had had every opportunity of education with a brilliant career before her as a pianist, when her deafness gradually came on until now she is unable to hear ordinary conversation. She had been his patient for twenty or twenty-five years and he had watched her readjust herself with great interest and admiration. She would tell her own story and show what could be done by a deafened person, not only for his own happiness but for the comfort and well-being of others.

How the Deafened Rebuild Their Lives. MISS ANNETA W. PECK, Executive Secretary of the League for the Hard of Hearing.

(*Published in full in this issue of* THE LARYNGOSCOPE.)

DISCUSSION

DR. STEWART, the President of the Academy, introduced Mr. John de Raismes Storey as a lawyer, a man who could speak four languages and who had done such good service in Italy during the war that he had been decorated by the Italian Government. He was practically totally deaf.

The Psychology of the Deafened, from a Layman's Standpoint. MR. JOHN DE RAISMES STOREY.

(*Published in full in this issue of* THE LARYNGOSCOPE.)

Ears and the Job. MISS ESTELLE SAMUELSON, Supt. of Employment Bureau of the New York League for the hard of hearing.

(*Published in full in this issue of* THE LARYNGOSCOPE.)

DISCUSSION

DR. E. B. DENCH in opening the discussion spoke as follows: "I hope that the other members of the audience have learned as much from the speakers as I have learned. It requires comparatively little energy for a surgeon to be in the limelight all the time or to do work under great exertion and achieve brilliant results, but it requires a tremendous amount of energy to do such work as Dr. Goldstein and Dr. Richardson have demonstrated and I wish to pay these gentlemen a very deep tribute for the great service they are rendering humanity. We have a motto, the motto of our Hospital St. Luke's Corpus sanare, animam salvare. If we, as surgeons, save the body the workers whom we have heard tonight certainly save the mind and soul of their patients. They have shown to those individuals who have been more or less ostracized on account of their affliction, a method of escaping a position of dependency and of contributing to the community a quota of usefulness, perhaps greater than that of many whose hearing is normal.

"Dr. Goldstein spoke of beginning the education of the deaf child as soon as deafness was actually demonstrated. This, I think is very important. I remember one case of a child who had been placed in an institu-

tion very early in life and whose progress I was able to watch from time to time. When I saw this boy at the age of seventeen, he was fully prepared for college and in addition to English could speak German, French and Spanish.

"Dr Richardson is certainly to be congratulated on the high quality of the personnel of his staff and I had the pleasure of seeing one case which had been under Dr. Richardson's supervision at Atlantic City last summer. Miss Samuelson has also shown that the hard of hearing are particularly qualified to occupy certain positions. I myself am somewhat hard of hearing and up to the present time have considered this as somewhat of an affliction, but tonight in view of the above facts I think I am beginning to look upon it as an actual blessing.

"The question of the adult deaf is perhaps one that concerns otologists even more than that of the deaf child, for many otologists see cases that are becoming progressively hard of hearing, and these should always be advised to take up the study of lip reading and make it an adjuvant; if the hearing stays still it is a help; and if the hearing is lost, it is invaluable.

"It is unnecessary to say anything about happy deaf people to those who have seen so many of them during the evening, and there is no need to say anything about deaf people being ostracized, for Miss Samuelson has shown that there are occupations for which they may be especially fitted. Much depends upon the individual, and if the deaf man is given half a chance he will make good as well as any one else.

Miss Carrie Kearns (Principal N. Y. City Public School for the Deaf) said that she had the joy and the honor of being at the head of 300 deaf children in New York City in a little old building on East 23rd street. When these babies first come they have never spoken a word in their lives and do not even know there is such a thing as language. "Where the class all agree with the teacher about something, and have no other way of expressing it, they say: "The same, the same, the same." That is the way I feel in regard to the papers of the evening. I have a very similar feeling for rewards of the hard of hearing, for I come in close contact with them. I notice the words "follow up" on their card. These words "follow up" form one of our watchwords. When a teacher begins a new piece of language work in our school, she must follow it up to see that it becomes the child's own. When the physician comes and gives us advice, we must follow his advice and bring it to the home. When our children go into the industrial rooms in our school we must follow them up to see that they are improving in skill in initiative and in speed; and when the children come to the top of the school and leave us, it is very necessary that we follow them up to find out what they are going to do in the outside world. We talk to the parents, to the industrial teachers and the class room teachers, and we send for the children to come and see us. They are usually very frank and tell us just what they are going to do. They have great ideas that they are very important; they know all about printing, machinery, etc., and they are going to do great things; we have to teach them that actual working conditions are very different from school work and that it is not going to be

all fun, but that it will be hard work and the hours will be long. As a start in this training the teacher of the graduating class keeps a time book and the children write in it when they come and when they leave, and this is sent to me once a month for approval and signature. It has become quite usual for them to be on time every day. Then we have to let the children know that it is not going to be important work they will have to do, but they may perhaps be errand boy or girl and have all sorts of unimportant work; but that they must stick to their jobs, and for the sake of the school must promise to stay six months in a place if we get it for them—they must realize their responsibility and make good for that time. We tell them that they may come to us with their complaints or write to us. We get occasional letters saying "I don't like my place; please get me another" or "I have had a raise and am doing well." It is very usual for them to come in to see us during the day to tell us what is happening to them, what they like and what they don't like. We try to keep very close to them and help them all we can. We also keep in touch with the employers to see where we can better train our children. We have a very fine alumni association which is very good for the children; they have their own social organization and their own ways of conducting the organization, but as we mingle with them and enter into their social side, we are finding out what we can do for them. At the present time our greatest difficulties are those that arise from present conditions. Children who are working in a place where they have a good chance to advance but where there is not much money at first, cannot see the advantage and are often prone to take a place where there is not much future, but where the wages are larger. They see only the present good. Another point is that the children are having too much money; they get jobs where they have so much money that they don't know how to spend it very well. But these matters will adjust themselves in the next five years as the world grows better, and things go back to normal conditions; the adjustments will come so that we shall be happy on both sides. The Good Book tells us to sow the seed, but it does not tell us to take it up the next day to see if it is growing nor does it promise we shall gather the harvest.

It is ours to sow, the great Ruler of all mankind will attend to the harvest."

Dr. Edwin L. La Crosse, Associate Principal of The Wright Oral School of New York City, said that he would be brief in his discussion, although it was a subject for which he would like to have a whole evening. Dr. Hays had asked him to discuss Dr. Goldstein's paper and he would confine his remarks to that. Dr. Goldstein had said that he had tried in many ways to increase the interest of the medical men in the matter of the education of the deaf child, but that in many cases he had not had much response. It must be remembered that every one is inclined to become narrow in his particular line of work. Even in his own work with deaf children he was liable to lose sight of the big problem on which Miss Peck was working, and think of the child as being the most important, while the other is of equal value. The medical men in New York city have cooperated very freely and have interested themselves in the subject of the

education of the deaf child. In June, 1918, when the convention of the American Medical Association was held in New York, quite a number of the visiting otologists inspected the work of the school, and last summer on their way to Atlantic City several found time to stop off and visit for a few hours. Dr. La Crosse then remarked that the young man whom Dr. Dench had spoken of as having sent to the Wright School when he was very young, was now pursuing his studies in Dartmouth College.

Another point that Dr. Goldstein touched upon and one that Dr. La Crosse thought should be emphasized, was that the physician should not only tell the parents early about the deafness of the child, but should also tell them of the possibilities for the training and education of the little one. He has seen parents come to his office, dejected and almost ashamed that such an affliction as deafness should come to them, but when they actually saw children being taught to speak and to read the conversation of others by watching the lips, and when they realized that it was possible to teach such a child all the subjects of the grades and in addition prepare them for college, they left with an entirely changed manner toward the child and its future. In the audience present Dr. La Crosse said that he saw a parent who had a child at present in school and who was so intensely interested in the advancement of the little girl, that he spent a few minutes in the classroom each morning before going down to business.

Referring to Dr. Goldstein's remark about the age at which the education of the deaf child should begin, Dr. La Crosse said that The Wright School had recently started a Correspondence Course for the mothers of little deaf children, with the idea that the parent in the home with the proper help could do a great deal to assist in the education of the child before it was old enough to be sent to a school. These precious years between the ages of two and six ought not to be wasted.

Dr. La Crosse said that there are today in the residential state schools of the United States, 11,103 pupils, and that only 927 of these are so placed that they do not come in contact with the sign language and finger spelling during their school day. Schools in which the sign language and finger spelling are used in conjunction with speech are called "combined method schools." Educators of the deaf are practically agreed today that speech cannot best be taught under such conditions. Dr. Goldstein is right in contending that oral instruction should be given in an oral atmosphere in order to get the best results.

Another point that has been much neglected is the development of residual hearing. Dr. Phillips had told of one such case. Dr. La Crosse said that today 50% of the pupils in residence at his school are using aural exercises with profit. The idea is to build up a hearing vocabulary by repetition of a word or phrase and teaching the interpretation of this sound perception to the pupil while the perception is registering on the auditory center. The advantages derived are not only a much larger and normal vocabulary but a general enlivening effect and a better modulated voice. Surprising results are sometimes accomplished even in the case of those whose hearing has been thought to be almost nil. In the case of those with considerable sound perception, auricular training, coupled with lip-reading ability has practically removed the handicap of deafness.

Dr. Frederick Martin (Director of Speech Improvement of the Board of Education), said that his work among the 900,000 children in the city was largely concerned with the correction of speech defects but that he also was helping the deaf child, and he wished to bring up a few

points, one referred to by Dr. Goldstein, in regard to auricular training, and the other in regard to the "sign language." Many municipalities and states are still teaching by the "sign language," and that matter should be taken up and stopped by such bodies as were assembled tonight. While the work of lip reading has produced wonderful results and developed many remarkable teachers, the matter of auricular training should not be neglected and the auditory part of the brain should be developed whenever possible. During the past year three cases had been referred to him as deaf. No diagnosis had been made by any physician or otologist, but the children were simply stated to be deaf and in all three cases speech and hearing had been developed after auricular training. One child who was said to have been born deaf and dumb, was not really deaf but had merely not developed his perception of sound. It was necessary to reorganize his brain so that he could perceive sound. That child is working today and is able to recognize sound and understand its meaning. In another city, which I visited, a child was brought to me who had been sent to a "sign" school for a year; I referred him to an oral school and within a few months he was taught to understand simple sounds and words, and use them. If auricular teaching is continued the auditory processes may be helped so that a child will not lose any more of its hearing. That, of course, does not refer to cases of organic deafness, but merely to cases of arrested development of the hearing.

Miss Josephine Timberlake (Associate Editor Volta Review) said that sometime her ears played tricks upon her and she could hardly believe them when she understood Dr. Goldstein to say that he thought the teacher of lip reading who had perfect hearing would produce better results with her pupils than the teacher who was too deaf to hear the sound of the voice. She said she did not know very many teachers of lip reading who had perfect hearing, though she did know a few, some of whom were her friends and were very excellent teachers; but she felt sure none of them would feel unkindly toward her if she differed with the opinion expressed by Dr. Goldstein. To say the least, that opinion was most disheartening to those deaf persons who have been led to feel that the teaching of lip reading is one thing that a person with defective hearing can do better than one whose hearing is perfect. Many of those whose hearing is practically non-existent have been brilliantly successful as teachers of lip reading, and at least one well-known teacher of lip reading, whose hearing is perfect, has told Miss Timberlake that she felt daily more firmly convinced that the hard-of-hearing teachers got the best results. Of course with the deafened soldiers it was easy to realize that it might be necessary to have teachers whose hearing was perfect, for they had to work with many illiterate men, foreigners and men whose speech also was affected during the war, and those defects had to be corrected, but usually those are not problems of the teacher of lip reading, most of whose pupils have correct habits of articulation. The problem of voice deterioration as a result of deafness is now being brought up by many of the leagues and schools for the hard of hearing throughout the country, and they are now introducing assistants for those persons whose voices have become impaired, and securing the aid of physicians and persons interested in vocal training to help restore such voices. But that is not the problem of the teacher of lip reading, and if the teacher is deaf herself she is a tremendous inspiration to her pupils. Moreover, she has a sympathy with the pupil and an understanding of his difficulties which the teacher with normal hearing cannot have.

Miss Timberlake said that the Volta Bureau in Washington is a place to which any one whose hearing is impaired or any one interested in the deaf can apply for information and helpful literature. It is doing a most valuable work, and one that is much appreciated by those for whom it is working.

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